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ABSTRACT

Three directors of TAFE (Technical and Future Education) are represented in this publication. Speeches by Lyall P. Fricker of TAFE, South Australia are: "Innovation in TAFE" and "Tertiary Education for All." Speeches by Allan Pattison of TAFE, New South Wales include "TAFE in New South Wales: Past Achievements and Future Prospects"; "TAFE and Higher Education"; "TAFE and Government Initiatives"; "Change and the TAFE Teacher"; "The Changing Role of TAFE: Access, Accreditation, Awards, and Articulation"; "Youth and Future Printing Trade Technology"; "Industry and TAFE: A New Relationship?"; and "Setting the Scene." The final speech, entitled "Where Next?" was a Sadadeen Secondary College speech night address" delivered by Geoff A. Hodgson of TAFE, Northern Territory Department of Education. (CML)

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SPEECHES BY TAFE DIRECTORS

Lyall P. Fricker

Allan Pattison

Geoff A. Hodgson

Edited by Sara Wilson

TAFE NATIONAL CENTRE
FOR RESEARCH AND DEVELOPMENT

Adelaide
1988

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INTRODUCTION

This is the first of what, it is hoped, will become an annual publication. The idea of publishing selected speeches made by TAFE Directors came from a Centre Liaison Officers' meeting.

The Conference of TAFE Directors warmly supported the idea and three Directors sent material for this first volume. The three Directors are Mr. Lyall Fricker (until his retirement, Director General of TAFE in South Australia), Dr. Alan Pattison (Director General of TAFE, New South Wales) and Mr. Geoff Hodgson (Deputy Secretary, TAFE, Northern Territory Department of Education).

All speeches have received minimal editing. Nevertheless, references (for example) to particular events associated with a speech night have been deleted.

LYALL P. FRICKER

Lyall P. Fricker was Director-General of TAFE, South Australia, from 1982 to 1988.

He presented the paper Innovation in TAFE at the Australian Institute of Tertiary Education Administrators' Tenth National Conference, held on 27th - 30th August, 1986.

Tertiary Education for All was presented to the Australian Education Conference, Perth, from 27th September - 2nd October 1987. The theme of the Conference was "The Dynamics of Learning: On Becoming a Learning Society."

1. INNOVATION IN TAFE

THE CHANGING CONTEXT OF TAFE

Although TAFE is one of the oldest segments of Australian Education, it is still not unusual for TAFE to be spoken of as if it were a newcomer, sometimes even by people in universities and institutes of technology which are in fact developed from TAFE institutions. For more than a century, TAFE institutions, whether called Schools of Mines, Technical Colleges, Mechanics Institutes, or Agricultural Colleges were quietly and effectively going about their business, away from the spotlight. Now, however, rapid and often disconcerting changes in our society and its technological and economic environment have brought a realisation that TAFE occupies a pivotal position within tertiary education. There are increasing demands on TAFE to respond to growing and new client groups. These responses are breaking new ground with regard to the range and level of courses, and with regard to the delivery systems, including processes of curriculum development, and administrative structures.

In this paper, I will attempt to outline some of my Department's innovative practices and trends in response to changing and often conflicting community and industry needs and demands, and the priorities and policies of both State and Commonwealth Governments.

New Clients, New Demands

The last decade represents a period of dramatic change in TAFE, a period of development and innovation comparable only to the widespread development of technical colleges and institutes in the last quarter of the nineteenth century, or to the training initiatives entailed in post-war reconstruction and the rapid take-off of Australian industry in the nineteen forties and fifties.

Despite this decade of rapid development, there is no reason to expect a compensating period of slower growth or even of consolidation. On the contrary, dramatic forces for change in Australian society, its technology and its economic structure have emerged and intensified in recent years.

TAFE is the area of tertiary education which has the most direct and immediate relationship with economic activity and the world of work and accordingly TAFE planning must be especially sensitive to the dynamics of economic development and to the forces of labour market adjustment. Nevertheless, the education offered by TAFE has as its principal role the development of an

individual's talents in all their dimensions and TAFE provision is vitally affected by a broad range of social and technical factors.

Demography and Educational Participation

Important factors are demography and educational participation. First of all, there is the wide range of ages among TAFE students; in South Australia 45% of TAFE enrollees are aged 30 or over, while another 31% are in their twenties, the modal age cohort. In consequence, TAFE may expect increasing enrolments as a result of the aging of the population, while some other sectors of education face declining enrolments as a result of diminishing youth numbers.

On the other hand, while the teenage share of population numbers is relatively declining, in TAFE this is more than offset by dramatic increases in participation rates. Throughout Australia, from 1975 to 1980 TAFE enrolments by teenage males rose by 40% and by 129% for girls; during the eighties the pattern has continued. In SA TAFE, enrolments have increased at an annual rate of almost 9% for young men and 15% for young women. At the same time school retention rates to year 12 have begun to rise again and experience - currently being tested by a formal research project at the TAFE National Centre - is that increased school retention leads to subsequent increases in TAFE participation.

Other factors to be considered include actions by governments to encourage adult retraining, increased apprenticeship openings, the introduction of the Australian Traineeship System and reforms to youth income support measures. Other changes in the age structure, working patterns and leisure interests of the population increase the demand for access and personal enrichment education. In short, the most fundamental contextual influence on the future of TAFE is the certainty that demand pressures will significantly outweigh even the most optimistic scenario on the availability of places.

Technology and Economic Restructuring

Technology and economic restructuring are important social as well as economic issues, especially in relation to their labour market implications. In the relatively short period since the second world war, Australia has been transformed from a nation in which, in 1947, half the workforce was employed in creating a visible product in the primary, secondary and construction industries to one in which, by 1980, two thirds of the workforce were engaged in producing intangibles - services and the processing of information.

From another perspective, a clear cut pattern of expanding and shrinking occupations has emerged. Thus, in the intercensal periods 1966 - 81, professional and technical occupations have grown by 67%, clerical 19%, service, sport and recreation 18.5%, and sales by 9%, while trades and process occupations have shrunk by 18%, transport and communications by 20%, mining by 24%, and farming and fishing by 35%.

Another important change is in the proportion of life devoted to work. From 1971 to 1985, average weekly working hours for males reduced from 41.7 to 38.6, of married women from 31.5 to 26.9, and of other women from 35.4 to 30.5; these changes are estimated to be equivalent to the creation of 800 000 new jobs. Over the same period earlier retirement has produced an equivalent of 406 000 jobs.

At the same time, an irregular but sustained increase in school retention and tertiary education participation rates has had a parallel effect. Reduced life hours spent in work, because of increased education or other factors are a significant way in which the community absorbs the benefits of economic development and creates employment opportunities for new workers.

This development has been especially important because of a sustained increase in female participation in the workforce. In April, 1986 the female work participation rate reached 49% (up from 46% in 1985) and the rate of increase shows no sign of slackening. Unfortunately, gender segmentation of the labour market remains marked, with 64% of females concentrated in the areas of clerical, sales and service; and the average weekly earnings of female full-time adult employees are not quite 80% of those of males.

Youth Employment Patterns

Youth employment patterns are of vital importance to all areas of education. Census data about the activities of 15-19 year olds over a fifty year period, from 1933 to 1984, while not strictly consistent in definition, show that in 1933, full-time employment was the aim of most teenagers, but achieved by only 55%; by 1954, fully 73% of 15-19 year olds were in full-time work; by 1966 this had declined to 66%; in 1984, a mere 33% of teenagers worked full-time. While economic conditions played a part, an increased valuation of education is even more important: in 1933, 11.6% of 15-19s were full-time students; by 1954, there was a modest rise to 17%; in 1966 27%; in 1984 fully 50%. The earlier unemployment data are unreliable, but over the last two decades unemployment amongst teenagers in the workforce rose from a negligible 2.6% to 25% in 1984.

The essential phrase is "in the workforce", because in fact only 10% of the teenage age cohort is unemployed. A similar proportion of the 20-24 group is unemployed, but for far longer average periods. This latter group is frequently ignored by programs which equate youth unemployment or transition education with teenage school leavers.

Structure of Employment

For those in jobs, the structure of employment has itself changed. The increasingly fine divisibility of the labour market is evidenced by the existence of primary and secondary labour markets as identified in the Kirby Report, and in the prevalence of male/female segmentation of job opportunities. Another aspect is the abolition of traditional job divisions - a generic "keyboard skills" classification replacing formerly specialist secretarial, clerical and accounting machine functions, or 18 printing trades reduced to four.

However, as the skills component of jobs rises, there are increasing degrees of differentiation - professional, associate, technician, tradesperson, semi-skilled operative, for example; with subdisciplinary specialisations added to the matrix. TAFE is asked to train both more narrowly and more broadly.

Social and Cultural Change

Finally, there is the changing social and cultural context of TAFE. There is, for example, increasing recognition of ethnic diversity.

In 1985 in South Australia, 23% of the population had been born overseas and 36% had one parent born overseas. As well, the rights of Australian Aboriginals are now given greater weight and both strands have become foci of an emerging ethos of multiculturalism.

Another significant social factor is the increased community acceptance that the life outcomes of all individuals - in education, in employment, in opportunities for personal fulfilment - should move closer to the community norm. TAFE can be a significant instrument for achieving that goal.

The expectations the community has of TAFE, therefore, are high and diverse. This leads to a dilemma for resource providers, given the competition of conflicting interests, constraints forced by economic conditions and by what seems to be a narrowing perception of the proper reach and range of government activity. On top of this is the fact that government budgetary processes are geared to patterns of incremental adjustment. The evidence is mounting, however, that the momentum of economic and social change as it affects tertiary education and especially

TAFE is reaching the point of a quantum jump - in its way, one as significant as the introduction of compulsory primary or junior secondary education. Given that on present patterns of participation, 71% of Australians will experience some sort of formal tertiary training in their lifetimes, and that a variety of youth and adult training schemes are aimed at augmenting those patterns, it seems to me that TAFE systems (and their higher education partners) will soon be called upon to act as a vehicle for universal tertiary education.

The South Australian Economy

TAFE in South Australia must also respond to the changing conditions and trends underlying the South Australian economy. Of critical importance is South Australia's dependence on the manufacturing industry which has experienced significant contraction over recent years. Future prospects for the development of the State will be significantly influenced by the recovery of the manufacturing industry, which in turn is dependent on a comprehensive restructuring and investment program and new marketing directions, on the development of the service industries, and, to a lesser extent, exploitation of the State's mineral resources.

All of these trends will bring additional pressures on TAFE to contribute to the enhancement, deepening and redirection of the skill profile of the South Australian workforce. This will require an appropriate training strategy which emphasises flexibility and transferable skills, particularly in favour of predicted growth industries and occupations, while industries experiencing restructuring will require workforce retraining and the development of skills appropriate to high technology processes. A number of TAFE teaching programs face a range of emerging new needs and demands. For example, in Electrical, Electronic and Mechanical Engineering, the strong development of the electronic equipment industry has encouraged SA TAFE to take a leading role in the introduction of advanced manufacturing technologies; while in Health and Care, Paramedical and Biological Sciences, biotechnologies are a major focus of sunrise industries with special potential and training needs.

The pressures on TAFE to respond effectively to accelerating technology, economic restructuring, demographic, social and cultural change, as well as new work patterns and the skill requirements of the workforce, are therefore considerable.

INNOVATION IN AREAS OF TEACHING

The TAFE sector has, for many years, been providing courses which meet the needs of employers in industry and commerce and provide skills for those seeking to be self employed. With the rapid changes in the occupational structure of the workforce TAFE is moving quickly into a number of new areas of teaching.

Bio-technology

The field of bio-technology has been recognised as a new industry growth sector in South Australia requiring a training response from TAFE.

Bio-technology may be defined as the application of scientific and engineering principles to the processing of materials by biological agents to provide goods and services. It is recognised that a number of enterprises and institutions specialising in biological/medical research, development and commercialisation form an emerging high technology genetic engineering/bio-medical industry sector.

Departmental investigation has determined that the bio-medical industry should be viewed as a field of technology and not as a discrete industry sector or a vocational group. Bio-technology related skills therefore form a part of the duties of a wide range of occupations within a range of traditional sectors of industry. In South Australia these include horticulture, animal production and management, dry-land farming, viticulture and food processing. TAFE currently has an established training responsibility for occupations in these areas - particularly at operative level.

SA TAFE is currently responding to the need for bio-technology training in these areas by consolidating and improving its current provision of bio-technical skills and knowledge through existing programs, and identifying and providing bio-technical skills/knowledge for occupations which entail some bio-technical activities but do not currently receive the appropriate training.

For the most part this will involve identifying bio-technical training requirements for occupations in the relevant industry sectors, and developing bio-technology curricula either as short stand alone courses, or as units or modules in existing awards for occupations requiring a component of bio-technical duties.

Because of resource constraints, courses developed for occupations which are solely or predominantly bio-technical are not envisaged in the short term, but are longer term goals for the Department.

Identification of bio-technical training requirements in a limited range of industries and an appropriate curriculum design process are expected to commence during the latter half of 1986.

Performing Arts

Performing Arts is an area which illustrates TAFE responding to new needs and emerging demands. Several innovative certificate courses in Acting, Technical Theatre and Dance have recently been added to the performing arts program of the Department.

The Certificate in Acting is a course focusing on the acquisition of working methods and an analytical approach to text and the problems of acting. Based on the systems laid down by Konstantin Stanislavsky and Rudolf Laban, the course is unique in Australia and is modelled on the Drama Centre in London.

The Certificate in Technical Theatre is designed specifically to train theatre technicians, (not stage managers) thereby filling an important training gap in this field. The importance and value of the course is reflected in the near 100% employment rate thus far achieved by course graduates.

The Certificate in Dance provides training specifically in the area of Modern Dance. SA TAFE is the first Australian educational institution to provide a Certificate level course in Modern Dance, and available data indicates that over 80% of course graduates have progressed to related employment.

Rural

Some important innovations involving SA TAFE's provision for the rural industry are also worthy of mention.

One of these is the On Farm Training Scheme which provides formalised training for future farmers or those in farming employment. The scheme involves a two year apprenticeship in which trainee farmers already working on farms are indentured to farmer-trainers and undertake training towards a Certificate in Farm Practice. Based on a traditional apprenticeship training approach, the trainees are provided with formalised on-farm training, together with a block release off-farm training component provided by TAFE. Farmers, trainees and local industry play an important participative role in the management of the scheme and in content design and development. The scheme enables trainees to competently perform a range of farming skills; gain a critical awareness of alternative farming practices; and seek, evaluate, and apply farming information. Currently 16 schemes are in operation, involving 300 trainees, and further expansion is anticipated.

Another initiative for rural industry, essentially designed to assist practising farmers, is the Outreach Farm Management Program. The program provides training in business management principles related to farming. Workshops of two to four

days duration are held in accessible locations (for example local halls), in rural areas for farming groups. A number of specially developed farm management packages have been developed to complement this innovative approach to reach rural client groups and provide for their needs.

Animal Care

In the field of Animal Nursing new initiatives in the area of animal care have been provided in 1986 in response to identified occupational shortages.

The Horse Industry Pre-vocational Course has been developed by the Gilles Plains College of TAFE for young people of 15 to 24 years who are considering careers in working with horses. The 20 week course, which utilized stable and training facilities of the Australian Breeders Co-operative Society (ABCOS) at Morphettville race track, provides opportunities to gain employment directly in the horse industry, (for example strappers), seek an apprenticeship in Jockey Studies, or acquire status in other areas of TAFE studies (for example, Animal Care Certificate). The recently completed pilot course was extremely well received, and successful in facilitating the progression of a number of students towards work or further study.

Aviation

SA TAFE's contribution to civil aviation studies to date has largely been confined to commercial pilot licence training and apprenticeship training in aircraft engineering. However an important innovation in 1986 was the introduction of a SA TAFE one year full-time Certificate in Aviation. This course, developed in conjunction with the aviation industry, offers a wide spectrum of business related subjects and provides entry to flying as a profession. Available information indicates that student academic achievement has been high, and the course has been extremely successful and well received.

A number of local industry demands have been identified by SA TAFE in areas such as flying personnel, aircraft maintenance, flight servicing, airborne/ground radio/radar aids maintenance, management and industrial flying. These will require up-graded training facilities and an extension of educational provision either by TAFE alone or in conjunction with advanced education.

Other Areas of Course Innovation

Other areas in which industrial applications are creating a need for new courses involve the use of lasers in, for example, garment construction, metal cutting and wood cutting, surveying, and medicine. In South Australia we are looking closely at the developments in these areas to assess the impact upon our

existing TAFE programs. Another field in which rapid progress is being made is that of optical fibres which, as we know, are supplanting metal conductors in many areas of communication and control mechanisms. A similar growth area is that of ceramic components in internal combustion engines. As these industries grow, TAFE has the responsibility to provide the training courses.

Information Technology Centres (ITeC)

ITeC programs provide learning opportunities in non institutionalised environments to enable unskilled, unemployed, women, disabled, and mature adults to develop skills and knowledge in technologies to which they were previously denied access, for example industries using, servicing and installing micro-electronics, computing, fibre-optic and robotics technologies.

SA TAFE's participation in ITeC initiatives reflect recognition of identified shortages of skilled labour with skills appropriate to electronics, micro-electronics, and computer industries, and the creation of new jobs in forms using rather than developing high technology applications.

Two successful ITeC models involving the participation of SA TAFE are being conducted under the auspices of the State Government. One of these, the Aboriginal Information Technology Centre operates from the Department's School of Aboriginal Education in the Adelaide College of TAFE. The Aboriginal ITeC provides computer based courses in key board mastery, computer awareness and word processing.

The other important SA DTAFE innovation in the information technology field is the Information Technology Training and Expertise (SA). ITT&E is an exciting new training initiative in the booming information technology industries for unemployed South Australians. Based on successful private sector management approaches, ITT&E provides rapid and flexible response to the needs and demands of industry. A modular course design enables rapid introduction of new modules according to the changing needs of students and employers. Course content emphasises both job-specific skills, such as word processing or soldering, as well as general vocational skills and attributes. A significant part of the course time is devoted to work experience and the provision of high quality hardware and services in the IT field to non-profit organisations. Students are individually counselled to determine an appropriate balance of personal development, skills modules and work experience.

The average length of each course is 10 weeks, although the major determinant is the student's readiness to enter the workplace, self-employment or further training.

ITT&E provides structured individualised training programs in information technologies for unemployed young adults to enable people by-passed by the changing employment situation an opportunity to become skilled workers so often in demand by industry. Participants have gained employment in related industries or have progressed to mainstream vocational, electronic and computing courses.

Special Course Provision

An important part of TAFE's role as an educational agent is the provision of special courses and services for defined groups and particularly disadvantaged groups. The most important of these areas, in which SA is responding innovatively to new needs and demands, are presented here.

Youth

The last decade has witnessed a remarkable increase in youth participation in the Australian TAFE system. In South Australia youth enrolments in TAFE between 1980 and 1983 increased by 42.3%. TAFE is a significant provider of education for 16-19 year olds in South Australia, as indicated in the following table.

	% of Age Group	
	1983	1985
Higher Education	10	11
TAFE (excluding link)	24	27
Government Schools	17	17
Private Schools	6	7
	57	62

TABLE 1: PROVIDERS OF EDUCATION FOR 16-19 YEAR OLDS IN S.A.

Sources: Schools Data, ABS: Higher Education, CTEC: TAFE data from SA TAFE enrolment information.

The South Australian Government has recently introduced a range of policies to enhance youth participation in TAFE, including expanding pre-vocational, vocational and other forms of training.

Commonwealth initiatives have also expanded youth opportunities in TAFE; initially the Participation and Equity Program (now curtailed), and the introduction of the Australian Traineeship System, for which SA TAFE is preparing and planning for the development of courses.

Aboriginals

SA TAFE has a range of educational programs aimed at developing technical and management skills within Aboriginal communities, groups and special programs for individuals as a means of obtaining access to mainstream TAFE vocational courses. These include full-time programs in Introduction to Trades, Information Technology, Child Care, Tertiary Preparation and General Education; part-time programs in specific trade skills, community management; and preparatory courses to enhance literacy/numeracy and employment related skills.

SA TAFE believes there is a need to increase opportunities for Aboriginal people to participate in innovative programs, in particular youth initiatives which secure employment or direct access to mainstream TAFE courses.

Bridging and preparatory courses are being developed which redress the disadvantages of inadequate or inappropriate education, and the low levels of Aboriginal participation in mainstream education, training and employment.

Other specific initiatives, either underway or in development, include the use of teletutorials for delivering programs to groups in remote areas; the Koonibba Bridging course which provides basic farming knowledge and related skills to enter the TAFE mainstream On-Farm Training Scheme; the Aboriginal ITeC which prepares Aboriginal people for employment in clerical and micro computing fields, as well as accreditation in mainstream TAFE courses; and Introduction to Trades courses which prepare youth for entry to Pre-vocational programs and apprenticeships.

Prisoners

SA TAFE provides educational programs for some 200 prisoners in eight Correctional Institutions in the State. This is an area in which TAFE expects to expand its provision of vocational preparation, trade awareness and short vocational skill courses (e.g. Wood Turning, Horticultural Skills).

It is hoped that Commonwealth allocated resources will eventually enable such courses to spread across all TAFE institutions in South Australia.

Disabled

The SA TAFE program for the disabled aims to meet the education and training needs of all persons with disabilities, both intellectual and physical, in mainstream TAFE.

Future provision will involve the implementation of a standardised course provision to meet preparatory, introductory and bridging needs of the most disabled students, and expanded support services for disabled students in mainstream courses. Innovative approaches are being developed to meet the vocational aspirations of students and to provide pathways to mainstream programs.

Specific new initiatives planned for the disabled include special courses to facilitate entry to technology occupations; Pre-vocational training and trade training; summer school courses, block-release format and expanded outreach programs.

Migrants

SA TAFE currently provides a range of courses and programs at varying levels for Migrants, directed at teaching English as a second language. The Adult Migrant Education Centre provides basic English language proficiency courses and services for newly establishing migrants. The Advanced English program provides advanced English classes to assist migrants to gain accreditation for professional and trade-qualifications; prepare for employment; and provide bridging opportunities to mainstream TAFE programs.

A Departmental priority in this area is to enlarge the range of special courses for migrants to facilitate their entry into TAFE mainstream vocational courses. Particular emphasis will be given to increasing the status of English as a Second Language in mainstream courses. Specific examples include encouraging appropriate credit for bilingualism - for example community languages components in areas such as Health and Care - and developing communication modules for ESL students in business studies courses.

It is intended that such actions will not only facilitate entry into mainstream TAFE courses, but will also bring about curricula change to reflect the multicultural nature of Australian society.

Other initiatives have specifically been targeted to cater for the needs of migrant youth. These include providing ESL support in Participation and Equity Programs and Pre-vocational courses.

Socially Disadvantaged Groups

SA TAFE provides special services for the socially disadvantaged through its Basic Adult Social Education (BASE) program.

BASE is conducted on an 'outreach' community educational model, with each course reflecting the needs of the participants.

A number of innovations are being pursued in this area, including forging more tangible links to the Department's wider access program, and to mainstream courses; developing a co-ordinated state-wide strategy, and expanding provision for specific disadvantaged groups, for example displaced male workers in rural areas.

Women

SA TAFE is firmly committed to a policy of equal opportunity to increase the provision of educational opportunities for women in the pursuit of equity.

This commitment pervades a wide range of TAFE activity in mainstream vocational courses, in courses designed to overcome barriers to mainstream participation (for example Introduction to Trades and Introduction to Technology), and in courses specifically designed for women's needs (for example Women's Studies and Women at Work).

An important Departmental initiative for women developed over recent years is the New Opportunities for Women (NOW) Program. NOW, a vocational re-entry course for mature age women, has been extremely successful in terms of employment and further training, and in ensuring access to TAFE.

New initiatives in the NOW Program are being developed to consolidate core curricula, and to extend the range of subjects to increase vocational opportunities for women and access to mainstream TAFE education. A number of areas have been targeted as potential growth industries where specific skills or training strategies may exist, (for example Floristry, Horticulture and Function Service). Other initiatives have also been targeted in less traditional employment industries, for example micro-electronic technologies.

Other new NOW initiatives are being targeted toward specific groups of disadvantaged women, for example migrant women, and women disadvantaged by distance.

Another initiative, Targeting of Places (TOP), aims to facilitate mainstream participation by women across the age spectrum. The initiative includes a systematic investigation of mechanisms for access at the institutional level.

As an overall objective, special course provision by SA TAFE for defined disadvantaged groups seeks to increase the access of these groups to mainstream TAFE and enhance the articulation of special bridging courses with those leading directly to career outcomes.

INNOVATION IN EDUCATION TECHNOLOGY

By education technology I mean the application of systematic thinking to the organisation of the teaching program as well as the utilisation of the latest available hardware. TAFE students are varied and diverse with a substantial range in learning skills, wide variations in age and ethnic background and considerable variation in motivation and interest.

Distance Education Technology

In South Australia some 10 000 of our students are enrolled in distance education. Accordingly, we are experimenting with a variety of technologies to try to provide the best set of learning activities for each individual student.

These include teletutorials, teleconferences, videotex facsimile, electronic mail, narrow casting, electronic blackboard and slow scan television and computer networking. Staff development is another aspect of distance education in which communication technologies have great potential. Teleconferencing, together with videotex, facsimile or electronic mail could provide staff development activities for all staff irrespective of geographical location.

There are several areas in which SA TAFE has utilized communications technology for educational purposes. These have involved the use of the Diverse Use of Communications Technology system (DUCT). DUCT was developed by the SA Education Department in response to the need for flexible and reliable teleconferencing equipment and allows a person or group of people to have a continuous interactive conversation with another person or group at a remote location.

Some important and highly successful SA TAFE experimental initiatives involving the DUCT system have already been implemented. One involved a pilot course for Aboriginals in remote areas called "Writing Better English" and involved teleconference tutorials. A course lecturer was located in Adelaide and linked by DUCT to groups in Coober Pedy, Ceduna and Berri. Telephone tutorial technology was chosen to provide teacher-student interaction, and to develop oral literacy skills - something not possible in most external mode courses. The course was an outstanding success, and has since been expanded to include other locations in remote areas. An important outcome was that the technology broke down many barriers experienced in the face-to-face teaching of Aboriginals resulting in better use of speech, enhanced listening skills and greater assertiveness in the learning process.

Another successful pilot course involving DUCT and the use of teletutorials was developed by the Adelaide College of TAFE for 20 Business Studies students in seven country localities who either because of academic or personal difficulties were likely to withdraw from the studies. The innovative approach proved effective in reversing a potential 100% failure rate by providing a non-threatening means of discussing and resolving problems and difficulties.

The use of videotex is also under development by SA TAFE as a means of providing potential TAFE students with access to current course information, as well as a method of delivering short courses to remote students.

Emerging Innovative Teaching/Learning Technologies

Other innovations involving the use of Interactive Videodiscs are also being developed by the Department's Learning Resources Branch for various groups and purposes. For example, an interactive videodisc program being developed with the Adelaide College of TAFE's Adult Migrant Education Service will enable individual adult migrant English language learners to master a range of social language forms (eg greetings, requests and apologies). Such a program will allow learners to proceed through routes determined by their preferences, mastery and diagnosed needs; it will allow self-assessment as well as reporting procedures for educational managers, and be bilingual, with explanations and assistance in the learner's first language.

We are also monitoring industry progress in the development of a videodisc/videotex interface. Such a combination will be a powerful tool for educational activities with its access to extensive interactive electronic data through videotex linked to the intensive visual storage capacity of videodisc. Small business courses, tourism and hospitality, and rural studies are curriculum areas most likely to benefit from this system.

New steps in the field of communication technology which are currently being planned include the introduction of facsimile machines into the Aboriginal Teleconference Project to facilitate rapid turnaround of student assignments; the introduction of country college communications networks to provide enhanced educational opportunities to rural communities such as Eyre Peninsula, Port Augusta and Port Pirie, to provide more staff development activities and better staff communications; and the installation of DUCT terminals at both Alice Springs and Tennant Creek campuses of Central Australia Community College to enable Adelaide College Library Studies and Business Studies students to participate in regular teletutorials.

Other innovations for implementation in 1986 and 1987 include the introduction of two TAFE Videotex Information Services. One of these will be an External Studies course information data base available through the Viatel system; the other, a TAFE course information service, will be available to TAFE student services, the public libraries, and through a proposed Education Department network.

Educational Use of Satellites

The extent to which TAFE will be able to utilize AUSSAT as a communications tool in course delivery remains unclear at this stage. While the South Australian metropolitan area and the country areas are generally well serviced by the TAFE network of colleges and branches, and by distance education programs, the needs of people in the distant rural areas, the real limitations in the range of offerings provided by many country colleges, and the unsuitability of many subjects to the print-based external study mode, should not be overlooked. Satellites are an extremely expensive communications medium, and, in TAFE, may only be applicable in very specific circumstances, for example a communications network spread over a large area with many transmission points. One possible alternative is a mix of telephone and satellite as communication carriers. This may represent the most cost effective means of better providing for the needs of these disadvantaged by distance.

Alternative Delivery Systems and Physical Design of Facilities

An important challenge for TAFE is to respond to the development of innovative delivery systems and technologies. While it is important not to ignore the benefits (and cost effectiveness) of traditional teaching and learning methodologies (eg chalk and talk, printed page and hands-on learning), it is important for TAFE to utilize new methodologies, technologies, and delivery systems where the new applications represent a qualitative improvement over existing practice. SA TAFE has already (as indicated) utilised new teaching/learning systems in areas such as distance education.

We now propose to develop an entire new college based on modern and alternative educational technologies. The Tea Tree Gully College of TAFE, to be built in the north-eastern suburbs of Adelaide, is expected to be operational by the early 1990's. It is expected to have 12 000 enrolments, predominantly in the vocational programs.

The new college design will incorporate innovation in facilities provision as well as in teaching and learning methodologies. A variety of methodologies will be utilised in providing a broad educational program at the college. Some subjects, for example most humanities, matriculation, and business studies

subjects, food and beverage service and women's education, will require group activities for thorough learning. Most, however, lend themselves to a combination of competency based education with 'individualised learning and student progression'. Such an approach encourages students to take responsibility for their own learning and to determine, in consultation with lecturing staff, their own rate of learning. On campus, individualised learning will be promoted as the preferred learning style.

The ultimate goal is to have the full range of college offerings available to students for independent study. This will include the development of appropriate learning packages which will include a range of resources including loose leaf worksheet booklets, video cassettes, slide tape sets and floppy disks. A range of existing distance education, competency-based vocational education and other individualised learning materials will be developed by a team responsible for undertaking this innovative work in learning resources.

Importantly, these materials once developed, will become a total Departmental resource, not just a resource for the college and its surrounding community, and will have wide applicability.

The college's emphasis on resource based individualised learning will be reflected in the physical design of the learning environment. In particular, the provision of resource rooms adjacent to practical learning spaces equipped with reference texts and journals, video equipment, slide/tape players and micro computers.

College administrative systems and staff selection/training approaches will complement these alternative teaching and learning methodologies. Since successful individualised learning systems depend, at least in part, on enlightened management, and management-led innovation, the college administrative structure will be geared to individualised learning and automated administrative systems which facilitate the record keeping and statistical analysis associated with these methodologies. The Department is therefore exploring innovative administrative structures crossing traditional discipline/school/administrative boundaries to complement the teaching/learning innovations.

INNOVATION IN ADMINISTRATIVE PROCESSES

A recent administrative innovation in South Australia - with important implications for my Department - has been the strengthening of relationships between TAFE and the employment, development and technology sectors of the Government. Until 18 December 1985 the Department of TAFE in South Australia was associated, as in many States, with Education and "shared" the same Minister. This was in many ways a convenient arrangement; after all TAFE in SA was previously the Technical Division of the Education Department.

The convenience arose because the one Minister was involved with the full range of education, from the "smoothies" to the "wrinkles", ie. pre-school to the complete tertiary education sector, it paralleled the arrangements in most other States, and the Federal Government, kept the contingent at the Australian Education Council (of Ministers) to a minimum, reduced the conflict around the Minister's table for the education bite of the State budget, encouraged co-operation "at the edges" etc. In fact the advantages of that arrangement seemed to many to be so strong that the Government of South Australia received considerable criticism for taking the initiative to separate TAFE (and the remainder of the tertiary sector) from Education and Childrens Services (Pre-schools and Child Care) and develop a closer association with the Department of State Development, Ministry of Technology and the new Office of Employment and Training.

The new ministerial arrangement brought into place in December 1985 are represented in the accompanying diagrams (see p.21).

Why make such a dramatic change which moves away from the other States and the Commonwealth? In the first place an obvious reason was that Education (of children of school going age) is, in itself, a large and sensitive portfolio. In addition pre-school and child care combined is a relatively new combination in South Australia which demands its extra share of attention during the development phase.

However, the positive and primary thrust behind the re-organisation is to strengthen relationships between the DTAFE and the employment, development and technology sectors of the Government to get South Australia into the forefront of preparing our State to obtain the greatest advantage from our increasingly technologically based society.

The importance of encouraging development/employment into a relationship between new technologies, skill formation, training, participation and work organisation has been experienced in the advanced industrial societies and perhaps has been managed best in Sweden, Germany and Japan. Experiences in the United States indicate that advanced technologies on their own have limitations on the long term development of the society, whereas Japan has integrated the technological advances with development, employment and training so that the benefits are longer lasting and spread wider into the community.

In summary, the previous portfolio arrangement was seen as logical and "comfortable" in relation to what was going on elsewhere. However it needed improvement and the question was asked as to where was there the greatest need to develop strong associations without being constrained by conventional wisdom. The Government's view (shared by my Department) is that

(Hon. Lynn M.F. Arnold)

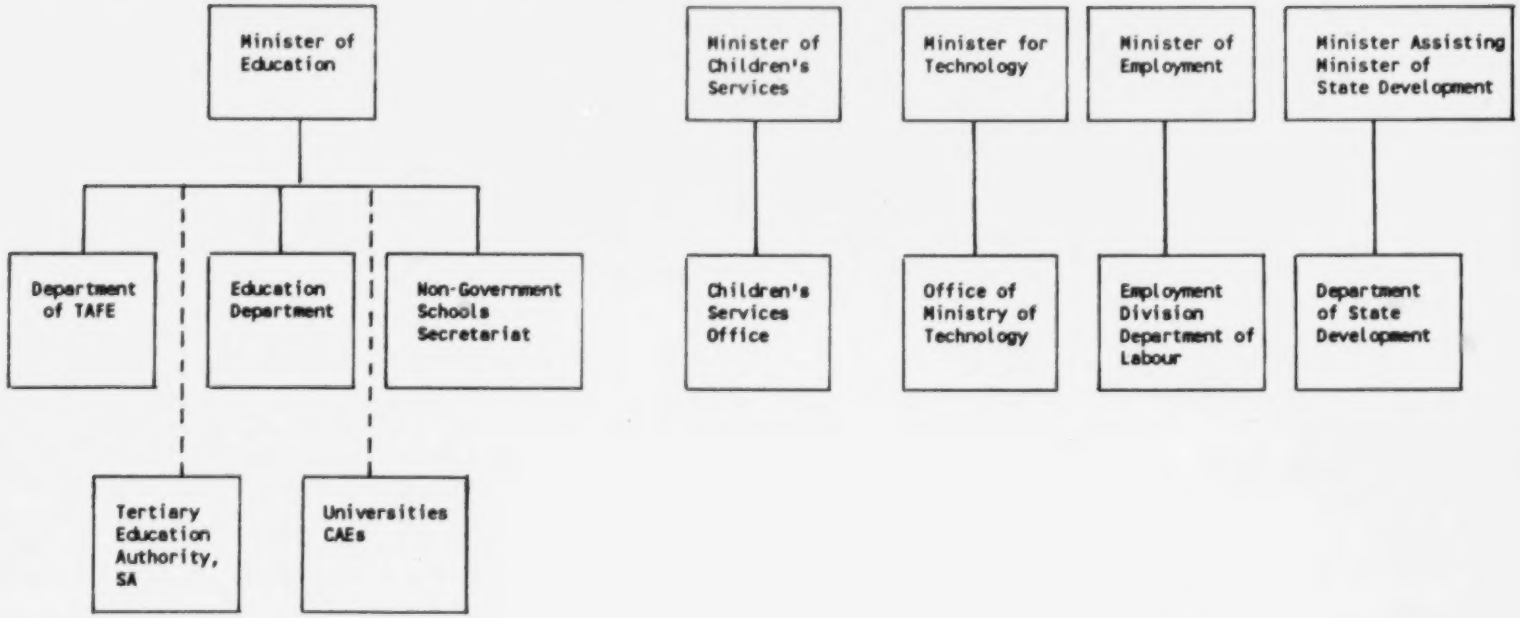
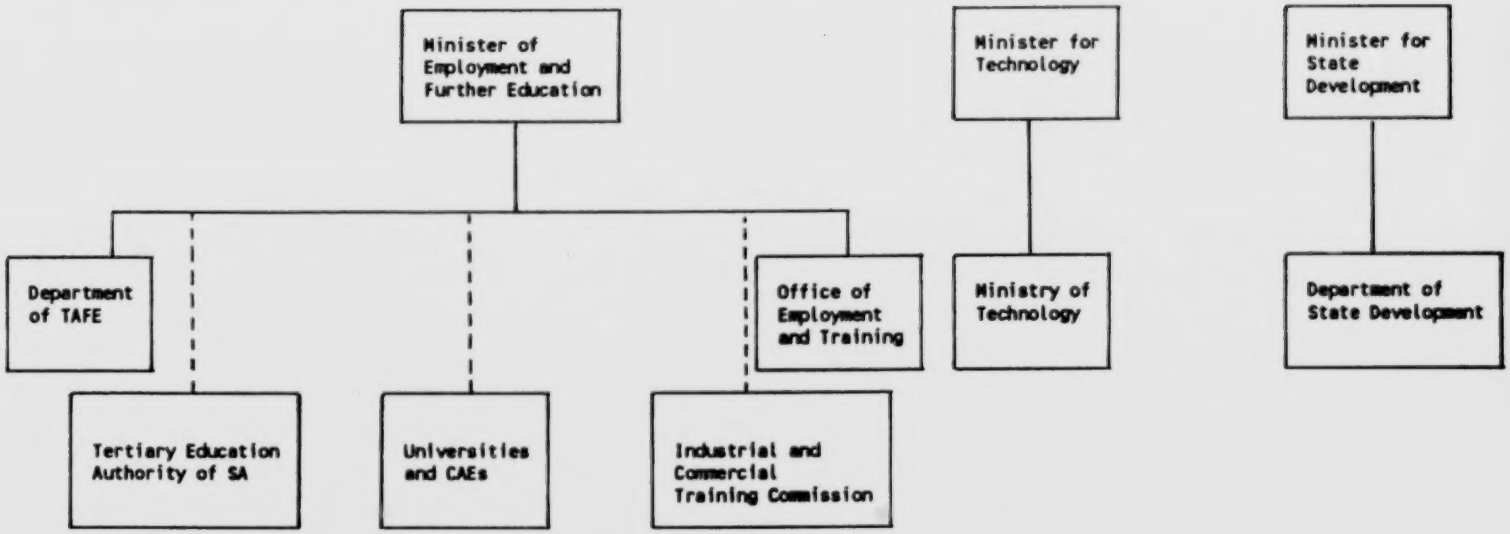


FIGURE 1: MINISTERIAL ARRANGEMENTS, SOUTH AUSTRALIAN EDUCATION, CHILDREN'S SERVICES, TECHNOLOGY, EMPLOYMENT AND (ASSISTING) STATE GOVERNMENT PORTFOLIOS - BEFORE 18 DECEMBER, 1985.

(Hon. Lynn M.F. Arnold)


Minister of Employment and Further Education
Minister for Technology
Minister for State Development
Department of TAFE
Office of Employment and Training
Ministry of Technology
Department of State Development
Tertiary Education Authority of SA
Universities and CAEs
Industrial and Commercial Training Commission

The portfolios of Education, Children's Services and Aboriginal Affairs are now grouped under a single Minister.

FIGURE 2: MINISTERIAL ARRANGEMENTS, SOUTH AUSTRALIAN EMPLOYMENT AND FURTHER EDUCATION, TECHNOLOGY AND STATE DEVELOPMENT - AFTER 18 DECEMBER 1985.

employment, training, technology and development is the combination for the future well being of South Australia.

The administrative organisation is relatively new and still in the process of resolution. However working parties have been established to foster co-operation between the departments. One example is a working party convened to examine the compatibility of data bases currently maintained by the separate departments and agencies with the Ministry. Obvious advantages could then accrue by means of information transfer when it comes to assessing the need for an industry development new technology, the requirements for staff and the training needs of those staff.

INNOVATION IN STAFF DEVELOPMENT

Some 20 years ago, one commonly referred to "preservice" and "inservice" in the context of training programs for teachers. In the TAFE sector today, one almost uniformly encounters the terms "initial teacher preparation" and "staff development". This change in terminology reflects the realisation that all TAFE officers, and not just professional staff, need learning opportunities in order to maintain their effectiveness and to keep abreast of rapid change in technology, society, the amount of information available and the world of work. Staff development addresses both organisational change and individual growth; and an important innovation in staff development is that individual development is increasingly taking place in its proper local context, whether work team, college or department. Participants are now less likely to be attending isolated courses and more likely to engage in action learning or projects. Exchanges, secondments and acting appointments with specific negotiated learning outcomes are becoming more common. More attention is paid to learning style; while there will always be a place for lecturers and discussion, reading and traditional courses, we shall see more use of case studies, critical incident analysis and simulations which cater for different learning styles. We shall certainly be seeing more competency-based staff development based on proficiency profiles which can easily be updated or changed to suit changing demands or circumstances.

Innovation is also underway in the identification and use of staff development resources. Reliance on the expert is giving way to making use of networks, both formal and informal, mentor/protege relationships and consultancy, both internal and external to the organisation.

Technology and Staff Development

Change in technology poses special problems for TAFE in terms of keeping TAFE lecturers up-to-date in their fields of expertise. In addition, change in technology enters into the very system of delivery of the teaching program. Computers are being increasingly used in the teaching process and, in fact, in South Australia we have a group of students in the Distance Education mode whose communication is totally electronic - assignments are transmitted, assessed, etc., and the student passes or fails with not a piece of paper passing between student and lecturer.

Clearly these developments must be reflected in a continual upgrading of staff expertise, and since one teaching method does not replace another the staff activity tends to be in the form of acquisition of additional skills. Students, to an increasing extent, are being asked to play a part in identifying their own goals and managing their own programs of learning.

Similarly, development of staff talents will move from a general, perhaps passive acquisition of knowledge and expertise to a more active individual learning of role related knowledge, skills and attitudes. Learners will increasingly manage their own development and engage a broad spectrum of resources to achieve negotiated development goals. I am sure that there will be challenges along the way, but I am also sure that innovative staff development will be more effective and appropriate to the context of TAFE.

INNOVATION AND PERCEPTIONS OF THE ROLE OF TAFE

In the past TAFE has been seen as primarily a teaching organisation providing a set of experiences designed to augment the learning and training of young and older persons in full-time employment. More recently, TAFE has addressed itself to the problem of the education of the young full-time student seeking a first qualification to enter the workforce. TAFE has also taken up the role of entrepreneur working with industry and government in designing and selling new educational activities or working in partnership with industry in the promotion of industrial development, particularly support of a State activity.

Technology Transfer

In a climate of rapid technological change, and with economic success at enterprise, industry, state and national levels dependent on the efficient transfer of relevant and cost effective technology into workplace practice, TAFE is assuming an increasingly critical facilitative and supportive role.

The need for TAFE to develop more flexible and responsive mechanisms in relation to technological change and technology transfer had led some SA TAFE college councils to become more involved in entrepreneurial and commercial activities.

Applitech, formed late in 1985, represents the commercial and promotional arm of the Regency College Council. It has developed a range of consultancy services in relation to applied technology transfer to industry. A major part of its activities to date have emanated from a successfully tendered Federal Government Consultancy Project to undertake a national CAD/CAM awareness program for firms in the Australian heavy engineering industry. Other courses, workshops and seminars, run on a fee for service basis or on contract from government and private industry, are proposed, utilising college facilities and staff, in relation to the application of existing applied technology to industry.

Elizabeth Consultech, a more recently formed operating arm of Elizabeth College of TAFE Council, is currently developing fee-for-service training programs utilising the application of CAD/CAM technology. Its first endeavour is the use of micro-computer and CNC equipment to develop a CIM centre based on the Auto-CAD software system. The American developer Entercom Computer has designated Elizabeth College as its training agent in South Australia.

Both these initiatives reflect one response to the calls on TAFE to become more entrepreneurial in providing flexible responses to emerging industry needs. While the potential benefits of innovative arrangements between colleges and industry are enormous, as self funding commercial ventures of college councils, however, they extend the role and functions of councils and in so doing raise a range of legal, administrative and accountability issues which will require departmental consideration and possibly Ministerial action.

The Export of TAFE Services

An important area of involvement for TAFE is participation in schemes and projects abroad in which TAFE contributes to the technical skills and professional development of the countries concerned.

TAFE has been involved in such programs as the MARA Malaysian Teacher Training Scheme which, between 1981 and 1984, provided technical up-date and teacher training for trainee trade teachers from Malaysia. Run in conjunction with the SACAE, the participants spent one third of the twelve month program exposed to a TAFE learning environment.

Other recent activities reflect a growing SA TAFE involvement in the export technical and vocational training.

Indonesian Commerce Polytechnic Project

The Indonesian Commerce Polytechnic Project is sponsored by the Australian Development Assistance Bureau (Department of Foreign Affairs) and managed by SAGRIC International Pty Ltd (associated with the SA Department of Agriculture) in conjunction with DTAFE and the SACAE.

The project is a new and vital initiative and involves a five year program to develop a TAFE business system within the Indonesian education system.

TAFE is specifically involved in providing assistance and support for the training of business studies graduates for the Indonesian Polytechnic Education Development Centre (PEDC) based in Bandung. The training will include technical subject content as well as specialist training in teaching methodology. The graduates will become 'Master Teachers' at the PEDC and, together with Australian specialist advisors, will train PEDC students who will become teaching staff in several other Polytechnic centres in Indonesia. SA TAFE Business Studies curriculum will also be used to develop courses and subjects to be offered in the Indonesian Polytechnics.

Indonesia is Australia's closest neighbour to the North West, and it is important for the development of our two countries and the region that Indonesia and Australia are able to co-operate in the exchange of technology. In this case TAFE is making a useful contribution to the transfer of educational expertise and experience.

Technical Skills Study of Hunan Province, China

Following the visit to China in 1984 of five Australian TAFE directors, the Australian TAFE system has been involved with the Australian Government's youth exchange with China.

As part of this program, a SA TAFE staff member recently visited the Hunan Province of China to assess the current and immediate technical skill requirements of industry. This visit has led the way for a visit within two or three months of a delegation of three TAFE lecturers and two apprentices to work directly with industry in the province. Although only a comparatively minor contribution, the activity reflects China's determination to modernise the country's technical and educational base, and is indicative of the opportunities available to TAFE to contribute to China's technical skills development and technological advancement.

INNOVATION IN INTER-SECTORAL RELATIONSHIPS

Finally, an important area of innovation is SA TAFE's interconnections with the wider educational environment. This includes our partners in tertiary education, the universities and colleges of advanced education; authorities responsible for the prior preparation of students, the schools; and the recipients of skills and attitudes acquired by TAFE students, industry, commerce and government.

TAFE/Higher Education Interface

A pioneer development is the South Australian Group of Chief Executives of Tertiary Institutions (SAGE), which brings together university Vice Chancellors, CAE Directors and the Director-General of TAFE on a regular basis to discuss policy issues, co-ordination, the prevention of duplication and the provision of joint or complementary services. Under SAGE's auspices, working parties have developed co-operative policies in areas such as child care, language teaching and staff development. Co-operative developments outside of the SAGE framework are also taking place at inter-institutional level; for example the provision by non-metropolitan TAFE Colleges of teaching areas, library resources and similar assistance to the external students of universities and CAEs.

Intersectoral Teaching

The provision by TAFE of teaching services to higher education is another area of growing importance. For example, the Department's established role in providing instruction to University of Adelaide engineering students has been expanded and deepened as Regency College of TAFE has developed as one of Australia's foremost centres of expertise in computer aided design/drafting and computer integrated manufacturing. The college also provides instruction for the SACAE degree in Industrial Design.

In another case, subjects in agricultural engineering are taught to Roseworthy Agricultural College students by staff from the Elizabeth College of TAFE. Individual TAFE staff provide a range of teaching activities in a variety of higher educational institutions.

Transfer of Academic Credit

SA TAFE has been eager to formalise arrangements which enable transfer of credit from TAFE courses to higher education awards within the State and interstate. The developments here have been extensive; in some cases exemption has been given from more than half a degree course of a TAFE Certificate. Such arrangements ensure that students embarking on a course may be

confident that progression to full professional status is one of the options available to them.

Within South Australia, a number of formal arrangements have been agreed involving transfer of credit from various TAFE Certificates and Associate Diplomas towards degrees offered by the SA Institute of Technology, the SA College of Advanced Education and SA Universities. In one area, Music, very substantial credit transfer has been negotiated from a TAFE Associate Diploma to University of Adelaide and SACAE degrees.

In discussing transfer of credit issues, there is a common misconception that this involves both a rigid TAFE - CAE - University hierarchy and a one-way path of progression. While TAFE's role as a major provider of vocational education focuses attention on credit transfer to the CAE sector, examples of transfer arrangements with universities are also being developed. There are also instances where university and CAE graduates seek skill up-dating and up-grading in TAFE institutions - for example in CAD/CAM applications - and transfer of credit arrangements have been formalised by the department where TAFE awards are concerned.

Integrated Courses

Finally, a further innovation involving TAFE and higher education has been the development of integrated courses and other means of transferring credit from one sector to another. An example developed by TAFE and the SA Institute of Technology involves the integration of trade, technician and degree levels in electrical engineering. Another involves an Associate Diploma in Women's Studies offered by the Elizabeth College of TAFE and the SA College of Advanced Education.

SA TAFE supports the continued expansion and development of all co-operative arrangements with higher education - particularly transfer of credit arrangements - because of the direct benefit to individual students and graduates. However, the first priority for TAFE in inter-institutional negotiation and curriculum review processes must always be the needs of TAFE students whose aim is to achieve TAFE qualifications. Modification of curriculum content to facilitate credit transfer should not obscure the fact that most TAFE students regard TAFE qualification as a primary goal, not as an intermediary or subordinate step.

TAFE/Schools Interface

It is a fact of life that more and more young people are staying on in school until Year 11 or Year 12 who do not then proceed to higher education. At the present time 80% of young people who move from secondary education into tertiary education do so in

the TAFE sector and it is my belief, therefore, that a close look should be taken at curricula in secondary schools with a view to facilitating the transfer of these young people from schools into TAFE. As I have said before, in our present society the acquisition of some specialist skill is virtually a pre-requisite to gaining a job. The specialist skill is obtained in the tertiary education system and in that respect secondary education is more and more becoming preparation for tertiary education. My view is that the most preferred co-operative arrangement is the development of school curricula, with assistance from TAFE, which will facilitate the passage of students from school to TAFE. This provides a more attractive option for school students and greater marketability of their qualifications in the labour market. Sequential articulation will be provided, although articulation with transfer of credit requires negotiation. This approach is both administratively efficient and cost effective to TAFE, while spreading the educational benefits to the widest possible range of students.

Other co-operative arrangements involving greater TAFE involvement are also supported in limited circumstances. These include TAFE providing elements of a co-operative course on a fee-for-service basis, and the permitting of schools to teach subjects derived from TAFE awards subject to TAFE maintenance of standards and assessment procedures.

TAFE/Industry Interface

TAFE is the sector of tertiary education most directly concerned with the processes of economic development and the workforce needs of industry and commerce. TAFE courses are designed to be relevant to present and emerging job needs, and are developed in close consultation with employer and industry representatives.

In South Australia, relationships between TAFE and industry are excellent and mutually supportive. In the area of curriculum development, for example, SA TAFE has for some years worked through a system of curriculum committees, the majority of which are always derived from the relevant industry. In recent years, the South Australian Council of TAFE (SACOTAFE) whose membership includes senior industry representatives, has provided advice to TAFE on a number of issues, including resource sharing of high cost equipment between TAFE and industry. Within the last few weeks the South Australian Cabinet has decided to restructure its sources of advice on tertiary education. Both the Tertiary Education Authority of SA and SACOTAFE will be disbanded and a new Advisory Committee on Tertiary Education (ACOTE) representing tertiary institutions, industry, employees and the wider community will provide advice to the Minister on the whole range of tertiary issues.

SA TAFE, working at State level, and also through the Australian Conference of TAFE Directors, has been involved in a number of tripartite bodies such as the National Training Council and the Industry Training Standing Committee through which it has examined a range of issues arising in the TAFE/Industry interface. More recently, the Federal government has established a National Task Force on the Australian Traineeship System (NATFATS) to oversee all aspects of the new traineeship scheme. TAFE Directors are represented along with employer and employee organisations and the Department of Employment and Industrial Relations.

SA TAFE is determined to make every endeavour to strengthen and deepen working relationships with industry groups. The types of existing arrangements between TAFE and industry are quite varied and include refinement of curriculum articulation processes, provision of equipment and facilities by industry, extension of TAFE services to industry, and in particular the enhancement of SA TAFE's network of specialist TAFE/Industry centres. These innovative arrangements offer enormous advantages and benefits to TAFE by enabling us to respond quickly to the needs of industry, especially in the rapidly changing area of new technologies.

TAFE/Industry Centres

The development of specialist TAFE/Industry centres represents an important area of innovation in SA TAFE/Industry relationships. These centres of expertise provide techniques and equipment at state-of-the-art level in TAFE institutions for specialist training programs, demonstration purposes and for actual use by industry. Such an approach represents a systematic process of technology transfer to South Australian industry.

The TAFE/Industry Centres at Regency College of TAFE illustrate the various purposes of such centres. The well-known CADDSMAN Bureau is an example of a private enterprise facility located in a TAFE college and available for mainstream and specialist training purposes in computer aided design, drafting and manufacture. PARTEC, the Plastics and Rubber Technology Centre, is a joint endeavour between the SA Plastics and Rubber Industry Training Committee and SA TAFE. The Centre, which opened in 1984, is located in the college with a mix of departmental and lent equipment. It aims to develop, promote and sponsor plastics and rubber technologies on a broad basis commensurate with industrial, commercial and social needs. A third type of Centre is that for CIM (Computer Integrated Manufacturing) which is a departmental facility making use of an extensive range of donated or concessionally sold hardware and software.

TAFE/Industry Co-operative Arrangements

Other less formal arrangements involving TAFE/Industry co-operation are also being developed in South Australia. An example is the co-operative arrangement between the Marleston College of TAFE and three major private wood processing firms by which the companies make their premises and equipment available for TAFE courses. TAFE lecturers are outposted to the companies and company staff are employed as part-time instructors.

Yet another innovation involving a CIM centre at the Elizabeth College of TAFE is an example of TAFE Colleges operating as a network. The City of Elizabeth is a satellite urban development which is a major focus of manufacturing industry. The Elizabeth College of TAFE has a long history of industry involvement and consultancy and has now utilised its micro-computer and CNC equipment to develop a CIM centre based on the American and Auto-CAD software system. The American developer, Entercom Computer Co., has designated Elizabeth CTAFE as its training agent for South Australia. Initially, the college is providing a staff development service to other colleges, but will soon develop specialist training opportunities for industry. At the same time the Elizabeth College is using its Data General mini-computer, with additional terminals, to access the Regency College's Easinet system, thus providing a comprehensive service to local clients.

However, these developments have raised a number of issues requiring consideration, including the ways in which the department can provide appropriate support for these college-based initiatives; the extent to which the department can legally engage in such activities; and the need for flexibility and responsiveness in the department's relationships with industry to ensure that offers from suppliers, copyright holders and other industry partners are able to be accepted while still maintaining the integrity of the Department.

For this reason, SA TAFE is presently developing a policy framework for the encouragement of TAFE/Industry centres which will focus on these various staffing, administrative and facilities management issues.

TAFE/Industry Resource Sharing

A further area of innovation in which the department has engaged extensively is resource sharing of high cost equipment between TAFE and Industry. Through various arrangements, TAFE Colleges are provided access to high cost equipment either on site or by way of loan, donation or concessional sale. Such arrangements offer considerable advantages as an alternative to outright equipment purchase, although they are limited to certain circumstances and certain disciplines and industries.

Fee for Service Courses

In a climate of budget constraint, the expansion of TAFE services will, to some degree be dependent on TAFE/Industry and TAFE Community co-operative enterprises. An important area of innovation in SA TAFE has been the active promotion of marketing of "fee for service" courses and consultancy services.

SA TAFE has been in fact providing education and training on a fee for service basis since its inception. Both State and Federal Governments have indicated that there is a limit to free public sector provisions for the training and retraining of adults, and have implied that the up grading and retraining of employees is an industry responsibility. Because of the relatively small numbers of firms with the capacity to provide in-house training in South Australia, specialist training provides and DTAFE will be increasingly called upon by industry to provide training on a fee for service basis.

The expansion of college initiated fee for service courses and consultancies represents an important area of innovation in TAFE.

INNOVATION AND THE MANAGEMENT OF TAFE

From what I have said in this paper it will be clear that I believe the TAFE sector of tertiary education, and my Department in particular, has a record of responsiveness to change and openness to innovation that compares well with the achievements of our colleagues in other areas of education and, indeed, with the most forward-looking elements of public or private sector management.

In developing this inventory of recent innovation I have pursued a checklist which covers - to use a business oriented analogy - new product lines, new client groups, new delivery systems, new shopfronts and showrooms, new funding and management systems, new ways of relating to other suppliers, new services to customers, new accountability mechanisms, new markets and new ways of looking at the functions of the business.

I haven't bothered to define innovation, since I think that describing a wide range of actions which I consider to be innovative is the best way of doing that. I did start out, however, not simply with the first item on my list but with a necessarily brief description of some fundamental changes which are occurring in the environment in which TAFE operates.

I regard this as an essential first step because I take to heart Edmund Burke's warning that to innovate is not necessarily to reform. It is a matter of some concern, in my view, that educational debates frequently seem to assume that innovation is

intrinsically desirable without any significant consideration of the context of the change or its effects elsewhere in the system.

Innovation makes sense only in the context of systematic, responsive planning. To use another piece of current jargon, innovation is most effective in the hands of a pro-active manager. The hardest task in the process of innovation is neither the development of the innovation itself, nor finding the resources for its implementation, but rather identifying the underlying factor - the technological advance, the economic dynamic, the social change - which requires an innovative response. Of almost equal importance is the development of an administrative ethos which welcomes innovations of substance and turns them into mainstream commitments.

To conclude, then, my view of innovative administration is that it is no innovation. Good managers have always been those who sought out the questions which would confront them beyond their day-to-day reactive tasks and planned flexible ways of meeting emerging needs whose full dimensions were not yet clearly outlined.

I hope I have demonstrated in this paper that TAFE has been responding to a rapidly changing environment with considerable effectiveness.

2. TERTIARY EDUCATION FOR ALL

In this paper I want to explore further a topic I raised in 1984 at the Australian College of Education Conference in Canberra in my address 'A New Focus for Tertiary Education'. At that time I observed that our present system of tertiary education is not adequate for the needs of an advanced technological society, and that it was my belief that the demands of an advanced technological society are so great that virtually all its members will require some degree of tertiary education. I argued broadly of the necessity, indeed inevitability, of a near universal tertiary education system, and expressed the view that for most people TAFE would be the provider of this education.

By "tertiary education" of course I mean all post-secondary education including higher education (universities and colleges of advanced education) and the TAFE sector.

Since 1984 there has been increasing debate in the community about the respective roles of educational institutions in the Transition From School to Work. This has been stimulated by numerous reports including those by the Commonwealth Tertiary Education Commission (CTEC), the report of the Quality of Education Review Committee (QERC); reports on education and training by the Business Council of Australia and the Confederation of Australian Industry, and, most recently, Australia Reconstructed, the report of the ACTU/Industry Development Commission to Western Europe. All have focused on various aspects of social and economic changes taking place in Australia, and the need for a national vision, strategies and coherence in our systems of education and training.

If we look back over our recent history we see that approximately a century ago, we moved towards universal elementary or primary education - clearly oriented to employer needs. By the mid twentieth century universal secondary education effectively became the norm. Today, most school leavers progress to some form of tertiary education, and a tertiary qualification is virtually a pre-requisite to employment - particularly for jobs with career prospects.

It is my view that we are now at an important turning point in the history of education in Australia, and indeed in other western developed countries. We have implicitly accepted the need for universal tertiary education.

In this paper, I will attempt to consider some of the most important implications of this development, including the social impact, effects on the formal education system, employment patterns, financial considerations, and the wider industrial and commercial scene in Australia.

BACKGROUND

When the Australian Colonies, following the lead of England and other western countries, introduced compulsory universal elementary or primary education, the nature of the curriculum provided was very much directed towards children acquiring the skills which were needed in a developing industrial society. Emphasis was placed upon reading, writing and arithmetic; the arithmetic, the language and the writing skills taught were those relevant to employment in shops, offices and the trades.

Over the next one hundred years, as the population became more literate, and as the structure of society became more complex, there was a continuing demand from both teachers and the wider community for an increase in the duration of schooling and for a diversification and enrichment of the curriculum in the schools.

Throughout the first half of the twentieth century an increasing proportion of the population undertook some secondary education (often in "primary tops" or "higher primary schools") and by the 1950's a lively debate was raging in Australia on the question of whether or not the community could afford to provide "secondary education for all". By the mid 1960's that debate had died and universal secondary education was an accomplished fact. There was little concern about the quality of the educational preparation for the workforce; the content of the secondary education provided for most school leavers qualified them for the job market.

In the 1980's the occupational structure is such that it is almost mandatory to have some specialist skill in order to obtain a job - particularly one with career prospects, and we have reached a position where a significant proportion of school leavers move on to some form of tertiary education. A review of trends in the tertiary education participation over recent years clearly shows the direction we are heading.

In 1986, 41% of approximately 250 000 school leavers continued directly with some kind of formal education, either on a part-time or full-time basis. A proportion of these moved into universities and colleges of advanced education (9% and 7% respectively), and almost half, moved into TAFE institutions. (See Table 1.)

	Destination	No	%	
Tertiary Education	University	22 500	9.0	
	CAEs	17 500	7.0	
	TAFE	50 000	20.0	
	Other Tertiary	12 500	5.0	(41%)
No Further Education	Employed	105 000	42.0	
	Not in the labour force	10 000	4.0	
	Unemployed	32 500	13.0	(59%)
	TOTAL	250 000	100	

TABLE 1: SCHOOL LEAVERS (FIRST DESTINATIONS) 1986

Source: School Leavers, Department of Employment, Education and Training, August 1987.

TAFE is also taking an increasing share of students proceeding directly from Year 12 to tertiary education. In 1984 approximately 60% of Year 12 school leavers continued their education immediately after leaving school. Universities, CAEs and TAFE attracted approximately equal proportions of Year 12 school leavers (See Table 2).

Destination	No	%
University	21 907	19.8
CAEs	23 496	21.3
TAFE	22 117	20.0
Other Tertiary	42 942	38.9
TOTAL	110 462	100

TABLE 2: YEAR 12 SCHOOL LEAVERS (IMMEDIATE EDUCATION DESTINATIONS) 1984

Source: School Leavers, Department of Employment Education & Training.

Moreover there is evidence that in excess of 70% of school leavers eventually move on to some form of tertiary education. Brewster et al, (1984) have attempted to extend existing measures of educational participation by estimating the number of Australians now aged 18 years who are likely to engage in formal post-secondary education by the age of 40 years. They estimate that the following proportions of young people will have enrolled in post-secondary education:

Tertiary Education Sector	%
Universities/CAE's	23
TAFE (Streams 1-4)	39
Other (e.g. Private Business Colleges)	9
TOTAL	71

TABLE 3: PROJECTED PROPORTION OF AUSTRALIANS NOW AGED 18 YEARS LIKELY TO ENGAGE IN TERTIARY EDUCATION BY AGE 40 YEARS

Source: Brewster (et al) 1984, p3

These figures further demonstrate the already prominent role TAFE plays in providing recurrent education opportunities in post-secondary provision.

Moreover, they emphasize the need to exercise caution in using full-time school retention rates as an indicator of the subsequent rates of participation in higher education. Although Australia ranks low (14th of 19 OECD countries) in the percentage of 16-18 year olds in full-time schooling, it is not always realised that we rank far higher (8th of 16 countries) in terms of participation in higher education.

Further, as Sweet (1986) has shown, although there occurred an overall decline in youth participation in full-time higher education in the 1970's and early 1980's, total tertiary participation among young people actually increased. The growth in youth enrolments in TAFE over the last decade, a major contributing factor, (relative to higher education), is clearly evident. (see Table 4) Between 1975 and 1981 total TAFE participation by the 17-21 age group grew by 21%, whereas in Advanced Education it declined by 7% and Universities by 11%. Full-time participation in TAFE for those under 31 years grew by 73.3% during the same period.

Table 4 also shows that the level of participation of 15-19 years olds in some form of education has risen significantly over the last decade or so, from 57.3% in 1975 to 66.0% in 1984.

		15-19 years			17-21 years		
		1975	1981	1984	1975	1981	1984
Schools		34.8	34.8	40.6	7.4	7.2	9.2
TAFE	Full-time	2.0	3.4	3.9	1.7	2.8	3.5
	Part-time	13.2	17.3	16.7	14.8	17.4	17.1
CAE	Full-time	2.9	2.5	2.8	4.7	4.1	4.5
	Part-time	0.3	0.4	0.4	0.9	1.0	0.9
Uni.	Full-time	3.1	2.8	2.9	5.5	4.8	5.1
	Part-time	0.2	0.2	0.2	0.6	0.6	0.5
All Sectors							
	Full-time	43.3	44.0	50.6	19.6	19.2	22.6
	Part-time	14.0	18.2	15.4	16.5	19.1	17.9
	Total	57.3	62.2	66.0	36.1	38.3	40.4

TABLE 4: PERCENTAGE PARTICIPATION BY AGE, SECTOR AND ATTENDANCE MODE, SELECTED YEARS 1975 TO 1984.

Source: Commonwealth Tertiary Education Commission.

The virtual doubling of enrolments in TAFE since the mid 1970's has been the most striking trend in Australian post-compulsory education in the last decade, and the growth in both full-time and part-time enrolments by young people is a significant contributing factor.

Overall participation in TAFE is around 20% for 15-19 years olds as a group; this compared with just 13% for the 20-24 year olds. This represents a significant increase in enrolments by young people. Young people make up 49% of enrolments in TAFE vocational courses but they comprise 65% of the total student load and account for 68% of teaching hours. TAFE also provides about three times as many places for young people as other higher education places.

Moreover, TAFE ranks about equal with schools in enrolments for 16-19 year olds. This is shown in Table 5 which presents South Australian figures for the educational activities of 16-19 year olds as a proportion of the age cohort.

		%
Universities	4 649	5.2
Advanced Education	4 800	5.4
TAFE (less link enrolments)	21 000	23.6
Higher Education	9 449	10.6
Government Schools	16 205	18.2
All Schools	22 074	24.8
All Tertiary	25 654	34.2
All Education	47 728	59.0
16-19 Population	89 140	100.0

(Department of Environment & Planning Population Estimate).

TABLE 5: EDUCATIONAL ACTIVITIES AS PROPORTION OF AGE COHORT 16-19

Some estimation of the impact of youth participation in TAFE is evident in enrolment trends over the decade 1975 -1984. (See Table 6.)

	Full-Time	Part-Time	Total
1975	20	132	152
1981	34	173	207
1982	34	178	212
1983	39	173	212
1984	39	167	206

(number per 1 000 of age cohort)

TABLE 6: PARTICIPATION RATES IN TAFE STREAMS 1-5, 15-19 - AGE COHORT 1975, 1981 TO 1984

Source: CTEC 1986

Although the data shows a slight decline in 15-19 year old participation in TAFE during the 1980s, CTEC estimates that resource constraints have dampened increases in youth participation in TAFE. CTEC also expects participation to increase significantly to the mid 1990's as a consequence of Government policies to increase secondary education retention rates and encourage youth participation in post-school education and training. As shown in Table 7, participation in TAFE of the 15-19 age group is expected to increase by 47.2% between 1984 and 1990, with the most significant growth rate occurring in part-time studies.

Enrolments (1000)	1984	1990	Total Growth % 1984-1990
Full-time	51	66	29.4
Part-time	201	305	51.7
Total	252	371	47.2
Participation Rate*			
Total	195	271	

*per 1 000 population aged 15 and over

TABLE 7: ENROLMENTS AND PARTICIPATION RATES IN TAFE STREAMS 1-5, BY MODE OF STUDY FOR 15-19 AGE COHORT 1984 (Actual) and 1990 (Estimated)

Source: CTEC 1986.

Hence, we are looking at the very real prospect of the entire population of school leavers staying on in the education system. For all practical purposes, universal tertiary education is already with us. Recognition of this development is particularly important to those of us in TAFE. Participation in TAFE on a national basis peaks at age 18 years, when almost 27% of the age cohort is enrolled in TAFE, either part-time or full-time.

These developments have already led TAFE away from its traditional role in providing specific job training. TAFE is now a major provider of both remedial and access programs for a broad range of groups, and broad-based full-time vocational preparation programs. There is also increasing evidence that many of our students, even those in seemingly job specific vocational courses such as the trades, use their "training" as a general educational base leading to wider occupational areas and careers.

Although Governments might well be inclined to attribute increased levels of participation of young people in education to their own initiatives (and they certainly have supported such a move), I doubt that Governments (or indeed the wider community) have fully grasped the implications of the existing situation and the likely effects in the future.

Despite a clear commitment by Governments at both State and Federal levels to the promotion of increased school retention to Year 12, and a more qualified support of increased levels of tertiary participation, it does not follow that the present figures for educational participation have resulted from systematic policy and planning. Nor is it clear that Government agencies not only in education but also in other areas, are as yet prepared to respond effectively to what is emerging as a major social transformation.

As educators I believe we face a significant challenge in trying to provide the range of educational and training opportunities needed to cater for the multifarious needs of today's young and not so young people. I also believe that we must alert the policy makers in other areas to emerging problems. Clearly we all have a duty to ensure that educational, social and economic development proceed as far as humanly possible in a co-ordinated fashion, in an attempt to minimise the unforeseen and undesirable social consequences.

Tertiary education for all is no longer a futurologist's pipedream. It is a continuing development and while I and others are eager to hasten its progress, there are others who remain skeptical about the value and the cost. Similar doubts were expressed when the notion of universal literacy was advanced and when universal primary education was advanced, and when universal secondary education was advanced.

However, I believe that the trend towards virtually all young people experiencing some tertiary education is both inevitable and universal in societies such as ours. I note that the recent report Australia Reconstructed, which is currently very much leading the debate in social, economic and industrial change in Australia, highlights the achievement in West Germany of over 90% of school leavers moving on to some form of tertiary education. I feel confident that we are following slowly but inexorably along this path. In this context the recent statements made in the context of the Federal Budget of September, 1987 are relevant such as: "The Commonwealth has set a goal of 65% retention rate to Year 12 by the early 1990's", and "Increases in tertiary participation will therefore be another high priority" (Dawkins and Holding, 1987, p.6).

I would now like to suggest some first steps in the examination of this significant educational development, and its far reaching implications.

EDUCATIONAL IMPLICATIONS

It is my view that the structure of educational provision currently available to young people beyond compulsory schooling is inadequate and that new opportunities and pathways must be developed to enable the acquisition of skills relevant to the modern society. These include skills of communication, and participation, as well as the skills required to earn a living - i.e. the pre-requisites for living fully the life of a citizen of a modern democratic society.

A comprehensive tertiary education should be available to all, not dependent on the prior implementation of an arbitrarily defined 'complete' secondary education, but having the flexibility to combine diverse patterns of work and study and to offer school leavers opportunities to study at various levels of education and occupational skills.

These should range from non occupationally-specific programs, which provide introductory level training in a range of vocational areas leading to a variety of occupational options and possibilities, to full-time study opportunities in specific occupational fields - for example in technician and business management fields.

Accordingly, a comprehensive TAFE education system requires a broad strategy of offerings and opportunities to meet the diverse needs of the 15-19 age group.

I have proposed that such a strategy should comprise the following elements:

- part-time education opportunities in the appropriate trade areas, as well as full-time opportunities, such as Pre-Vocational and Pre-Apprentice programs.

- full-time para professional/technician level courses in expanding industries (eg business studies, computer education, travel and tourism, catering and hospitality, electronics and the high technology areas).

- full-time introductory courses, based on a range of vocational disciplines, designed and offered on a modular basis with flexible entry points and carry over credit towards other more specific vocational courses.

- adaptation of existing vocational courses to the needs of youth and of full-time students.

- special remedial programs to specific groups of young people with prior education disadvantages.

I have argued previously that TAFE already has advantages for young people which no other education sector can match, bearing in mind that I am proposing an emphasis on clearly vocational disciplines to secure the desired educational outcomes. TAFE already has the capacity to handle a system of near universal tertiary education; the requirements for such a system are essentially similar to those presently undertaken by the TAFE sector. Indeed, TAFE has already gone far to develop its programs and methodology in the direction required.

The development of a comprehensive system of tertiary education will also influence our traditional thinking in the provision of post compulsory education in secondary schools. In particular, new attitudes, new curricula and new programs of teacher education will be required in preparation for the different types of tertiary education into which the majority of these young people are moving. To quote once again from Dawkins and Holding (1987, p.6): "Achievement of this target will require new approaches to make the final years of secondary education more attractive and relevant to a wider range of young people. Curriculum reform will be an essential element in this process".

Firstly, it is clear that those curricula in secondary schools which are dominated by considerations of university entrance will not be appropriate for young people moving into the range of courses which must be provided to meet the demands of the late twentieth century. The need for reform of the support secondary curriculum to attract young people to complete their secondary education has well been documented. These is also a need to expand the range of options, including various combinations of part-time schooling and/or part-time TAFE and /or part-time employment.

There are also significant implications for teacher education and preparation. Teachers in both primary and secondary schools will require different forms of preparation for teaching from those provided twenty or thirty years ago; inservice programs will be required for those teachers who have served for some years in the existing system and may not have caught up with the social changes referred to.

In tertiary education we are dealing with adult students whose motivation to learn may be quite different from the desires of school children; the prime requirement of lecturers at this level is demonstrated professional ability in the particular field being taught. Formal teacher education may improve the ability of the lecturer but should not be seen as a pre-requisite for employment.

There is also a need to consider changes to the TAFE role and relationships with the tertiary education providers - universities and colleges of advanced education. Already there are pressures to reduce arbitrary barriers between the sectors and promote flexibility and strengthen linkages, particularly through transfer-of-credit agreements. In the longer term we should be aiming towards a continuum of opportunities in which students can avail themselves of opportunities on the basis of movement between the tertiary education sectors.

FINANCIAL IMPLICATIONS

The provision of adequate resources is clearly a significant issue in the implementation of a comprehensive tertiary education system.

The present financial constraints on TAFE are already well known. In 1987 TAFE across Australia is turning away approximately 100 000 students, and if present resource policies continue even higher levels of unmet demand could result. Efforts are underway to maximise TAFE output through increased productivity and efficiency in planning and provision, but even so it is clear that if a high proportion (say 80%) of the youth cohorts are to be accommodated within the TAFE systems, the implications for government expenditure in general and TAFE resources in particular will be considerable.

Here again the recent Dawkins and Holding (1987) statement has significant implications. The Federal government will provide grants to the States on condition that there is "a commitment to pursue improvement in productivity in 1988, including in the area of terms and conditions of staff employment" and "the Commonwealth has decided selectively to relax the prohibition on charging of fees in TAFE". (p.36).

While one aspect of the cost of tertiary education appears in the form of government expenditure, another is the cost to parents through income foregone of maintaining young people in study instead of income-earning activities.

With regard to the latter the new decisions of the Federal Government include a Job Search Allowance up to $50 per week for 16-17 year olds, replacing unemployment benefits, and an increase in Austudy rates "to provide equality of basic benefits for secondary and tertiary students and unemployed young people" (Dawkins and Holding, 1987, p.46). It is as yet too soon to assess the impact of these measures, but it is clear that future developments will place an increasing strain on this type of funding.

With significantly higher proportions of young people remaining in education until age 20 or 21, the number of persons studying while raising families may also increase. There may be a need for additional child allowances for full-time students, including couples and sole supporting parents.

It is worth noting that the overall financial cost to Government in respect of these provisions may be minimised if they largely involve a transfer of funds from unemployment benefits to student allowances and other education measures. Nevertheless, these are matters to which the government will have to continue to pay attention.

The second area of financial cost is that relating to direct expenditure by governments on the provision of education. This includes capital costs of new buildings or remodelling other buildings (such as former high schools, left empty or under-utilised by declining student enrolments). To some extent, therefore, the provision of adequate resources may only involve a diversion of resources within the wider education portfolio, and the setting of new priorities. However we must not underestimate the difficulties of such transfers of resources; each sector of education has its lobby group, which will fight to retain its current funding base.

In this area also the rules of government funding for TAFE were changed in September 1987 when it was stated that in future "capital grants will be used to better reflect national priorities and skill formation objectives as part of an overall objective aimed at increasing the capacity of the vocational training system" (Dawkins and Holding, 1987, p.35). With regard to higher education a Budget press release stated "Mr Dawkins said that higher education would be further directed towards meeting the needs of the economy and links with the private sector would continue to be developed to ensure that courses were offered that would meet the needs of industry".

Other implications of universal tertiary education however, will involve the infusion of new resources. In particular, adequate equipment and other physical resources will be required to provide both the range and level of courses required. Whether such resources are purchased outright, or gained through leasing or borrowing arrangements, some additional public expenditure will be required.

A further obvious cost will be the provision of additional staff, particularly on a full-time basis, to meet the demands of higher levels of participation in our tertiary institutions. Because a comprehensive tertiary education system involves a broad range of educational offerings, staff across a variety of fields of study will be required. In the present economic climate, it is difficult to see how State or Federal Governments will be able to make significantly greater resources available, at least in the short term. Additional resources will therefore be sought from the consumer - the student and/or the employer.

SOCIAL IMPLICATIONS

Another consideration relates to the effect upon the individual, society, and family structures of increasing the duration of "pupillage" of our young people, up to, say, age 20 or 21.

Fifty years ago young people left school at the age of 13 or 14, moved directly into the workforce and were classed as adults. Current statistics indicate that retention rates to Year 12 in

schools are approaching 60%; if this is to be followed by full-time study at tertiary level I would guess most young people will opt for another two years. Let me repeat that this is only a guess, but my belief is that most people, having completed year 12, will be aiming for something at the level of an Associate Diploma. Hence we are looking at young people entering the workforce at an average age of at least 20.

So we will have the situation in which most young people will still be classified as students up to their early 20's. They will not be independent wage earners, nor will they necessarily be free of their parents. It is likely that many young people will elect to remain in their parents' houses up to that age, and others may wish to leave home, but their part-time, casual or temporary employment, will not provide sufficient financial independence. They will not, therefore, be in a position to make life decisions with regard to their own actions and their futures. Also since these young people will be drawing fewer 'life experiences' from engagement in employment, there may be a demand for additional support services by Government human services agencies.

As I have mentioned already, a proportion of young people, while still in full-time study will want to get married and have children. Apart from the financial implications in terms of child care and support already alluded to, there will also be social implications arising from these new trends in educational participation. In particular, we should recognise the needs of those who "cannot cope", or experience financial and other difficulties. Again we should recognise the potential impact of these needs on the provision of community welfare and support services.

The existence of a significantly higher proportion of young people up to the age of 21 engaged in tertiary education study, and therefore not in an earning or productive capacity, also raises questions regarding our definition of the workforce which must support them. For example, will we still continue to retire people compulsorily at the age of 55, 60 or 65, or will we recognise that many people in their older years are still capable of productive work, and that their earning power may be harnessed to contribute to the consumption in the educational area of the generation under the age of 21?

Both the social attitudes of the young, and attitudes towards the young will be affected in a new universal system of tertiary education. For example what effect will there be on the 'generation gap', given the more competitive and less financially rewarding pathways experienced by the young in comparison with their predessors? Will the expectations of young people as a result of extended education in the tertiary sector be realistic given tight entry level job opportunities?

Will we see even more "creeping credentialism", to which I shall refer later.

LABOUR MARKET IMPLICATIONS

A comprehensive system of tertiary education based on the TAFE sector would, if fully implemented, have major implications for the youth labour market.

High levels of youth unemployment have proven to be a major characteristic of the labour market over the past decade and an apparently intractable problem for Government. It is notable that neither limited direct Government intervention in the economy, nor improved national economic growth, have impacted significantly in arresting the deterioration in the labour market situation of young people.

The persistence of youth unemployment is due not only to the decline in the national economy, but importantly to gradual but significant changes in the youth labour market. These include a significant decline in full-time employment for 15-19 year olds (31% decline in the proportion of teenagers with full-time employment between 1966 and 1985), due to structural changes in the commerce and industry, in particular a decline in occupations traditionally major employers of young people, and growth in part-time employment among 15-19 year olds relative to other groups - particularly in jobs of low skill content, especially sales, clerical and labouring.

Moreover, there is clear evidence that school leavers are relatively disadvantaged because of lack of educational qualifications and their lack of competitiveness in the labour market. Technological change has brought about a decline in employment in areas such as manufacturing, while the service industries are expected to expand, particularly those using information technology, and the introduction of new technology in design and production.

However, present demographic trends, combined with an increase in full-time education participation, could significantly impact on the problem of youth unemployment.

The recent Schools Commission report <u>In the National Interest</u> shows that national Year 12 participation rates have risen dramatically over recent years from 34.1% in 1975 to 48.7% in 1986. The Commission has recommended a national target of 65% retention rate by 1992. There is evidence that this level may be achieved before 1992. South Australia, which had a retention rate in 1986 of 54.8% has already achieved a retention rate of 60%. The rising rates of secondary retention in Australia are illustrated in Table 8.

	All Schools		
	Males	Females	Total
1975	34.6	33.6	34.1
1981	32.0	37.8	34.8
1982	32.9	39.9	36.3
1983	37.5	43.9	40.6
1984	42.1	48.0	45.0
1985	43.5	49.5	46.4
1986	45.6	52.1	48.7

TABLE 8: APPARENT RETENTION RATES TO YEAR 12 AUSTRALIA (ALL SCHOOLS) 1975-1986

Source: Commonwealth Department of Education

Secondary enrolment projections show that despite an expected demographically induced decline in school enrolments between 1984 and 1992, there will be 565 000 full-time school enrolments in the 15-19 year old groups, representing an increase of 43 000 on actual school enrolments for this group in 1984 (522 000). The Commonwealth Tertiary Education Commission has noted with the projected secondary retention rate, together with traineeship opportunities, and tertiary education placement, in particular in TAFE, a situation approaching full engagement by the 15-19 age group could be achieved by the early 1990's.

This is demonstrated in an education and labour force activity scenario of 15-19 year olds to 1992 prepared by the Commonwealth Tertiary Education Commission: (Table 9)

Although the scenario is based on assumptions which may be optimistic given present funding constraints, CTEC's (1986) underlying premise is obvious, namely that

"Provided the resources are put in place to sustain the education and training options depicted for 1990, the demographic decline in the youth population beyond 1990 will then produce a situation which could lead to the virtual elimination of unemployment among 15-19 year olds by the early 1990's" (p.182).

This trend, combined with the expected growth in the population of older age cohorts and the present trends towards early retirement, will result in a reduction in youth workforce participation. A significant effect could be a considerable impact on the nation's dependency ratio - the proportion of the workforce in productive employment compared to those in pre- or post-employment activities. This may in turn have significant implications for retirement rules, superannuation proposals and the female workforce participation rate.

Major Activity	June 1984	June 1990	June 1992
Full-time Education			
Schools	522	570	565
TAFE	51	66	73
Higher Education	72	85	88
Other	11	12	14
TOTAL	656	733	740
Full-time Employment			
Apprentices	110	125	125
Trainees	-	75	75
Other	322	300	252
TOTAL	432	500	452
Unemployed, looking for full-time work	122	65	30
Other	82	72	68
TOTAL AGE COHORT	1292	1370	1290

TABLE 9: EDUCATION/LABOUR FORCE ACTIVITY PROFILE OF 15-19 YEAR OLDS, JUNE 1984 (ACTUAL) AND POSSIBLE SCENARIOS - FOR JUNE 1990 AND JUNE 1992 ('000)

Source: Commonwealth Tertiary Education Commission

Increasingly however it will be necessary to provide for greater numbers of school leavers a range of full-time educational and training opportunities and preparation prior to entrance to the workforce. As the QERC Report (1985) has emphasised, there is a need for broad based preparation for occupations that will involve a higher degree of interpersonal skills, decision making skills and problem solving skills. We must avoid overly narrow job specific training and introduce curricula which avoid over specialisation and provide sound and general education which promote creativity problem solving and initiative.

As Sir Bruce Williams (1987) has noted recently, we must ensure that the tertiary education sector assists not just in economic growth and industrial growth, but also prepares people for the post-industrial society in which the tertiary sector of the economy becomes the predominant force in generating employment growth.

There is ample evidence of the increasing concern in Government, business and the wider community regarding the need to develop an adaptable and flexible workforce to meet the increasing challenges from abroad. Although some efforts have been made to include greater adaptability and flexibility in our course design and skill development, these efforts have been adhoc and without overall planning and co-ordination. As Professor Ford has noted in a recent article, Australia no longer enjoys the benefit of space and time that our isolation has traditionally offered us, to adopt and learn from overseas experience. We must respond innovatively to the new demands placed upon us by international competitors, particularly in the high technology countries in the Pacific.

In short we must endeavour to enhance our competitive edge by ensuring that our training methodologies emphasise the development of an adaptable, flexible, innovative and multi-skilled workforce. Education and training arrangements currently premised on the labour force needs of an industrial economy, must be reviewed and modified for an increasingly post-industrial economy where high technology and the service sector are increasingly important.

We therefore need to provide broad based initial post-secondary training opportunities with general transferable skills, both to enable people to adjust more effectively with technological and structural change, and provide a basis for personal development, enhanced job mobility and access to further training and qualifications. This includes updating and upgrading of existing skills, developing new skills and enabling skill transfer from one discipline to another. A key element particularly in TAFE is to respond effectively to technological change, in particular increasing workforce skills needed to make use of modern technologies.

Within the overall structural and skill level changes within the labour market are the specific problems faced by young people in entering the labour market. It is becoming clear that not only are entry level employment opportunities diminishing for the young, but increasingly employers are favouring the recruitment of young people with some form of work experience. A recent survey of Australian companies by the Business Council of Australia showed that the overwhelming majority preferred new staff with at least one year's experience rather than recruiting directly from secondary education.

There is growing support for the need of a comprehensive system to ensure that all persons beyond compulsory schooling to the early twenties have access to a range of post-school education and training options to minimise the number of young people forcibly unemployed.

A problem area, however, concerns the relationship of education and training, and desirable patterns of linkages with employment. Some oversimplified comparisons of Australian and overseas education participation rates have concerned themselves only with immediate post-school, full-time institution-based education. Frequently the point is made that our educational participation rates are poor by international standards. Caution against such comparisons are necessary, however, particularly when comparing countries which train for occupations on a full-time basis with those which favour work experience combined with part-time education. However, given recent dramatic increases in our school retention rates, we need, as Sweet (1986) has pointed out, to now shift the debate more towards the forms of institutional arrangements for education and training in the immediate post-compulsory years.

Australia, like the United Kingdom and West Germany, has a long tradition of linking employment and education, principally through the traditional apprenticeship system as a structure of vocational preparation for youth - particularly males. There is growing recognition, however, of forms of education and training in countries where the emphasis in vocational preparation lies more with the education sector and less directly with the labour market - for example the United States, Japan, Canada, Norway and France. In re-appraising our existing training structures, and evaluating the relative contribution to skill formation of institutional and on-the-job training, these countries present alternative comprehensive full-time post-secondary systems, in which in varying degrees skill development is placed on an educational continuum rather than sharply divided categories like school, TAFE, higher education and industrial training.

Some of these issues have been highlighted in the ACTU/TDC (1987) report which recommended to the Government a five year program of options and opportunities for young people emphasizing access to full-time education, specific vocational training or employment. The proposal is aimed both at effectively eliminating youth unemployment, and enhancing our national skills base.

While not concerned here to explore the desirability or feasibility of the report's specific recommendations, I note the reference to trends in the education and training systems of Western European countries. In West Germany, for example, a goal of providing an opportunity for every school leaver seeking a place in further education and training has almost been achieved. Of those completing secondary education to the age of 15 or 16 years, 60% are engaged in apprenticeship training, 10% in full-time vocational training, and 20% in higher education. Although important differences exist between Australia and West Germany in education and training - for example the German Dual System of apprenticeship training applies to a far wider range of occupations and industries than ours (approaching our apprenticeship model and the traineeship scheme combined) - the

point is clear enough: less than 10% of school leavers are lost to the education and training system in West Germany. Other trends in the labour market systems of advanced western societies are also pointing the way towards full engagement of the 15-24 age cohort in combinations of employment, education and training.

In West Germany, as in other parts of Europe, much of this trend has focused on the apprenticeship model of part-time training linked to employment. In Australia the trends indicate developments along the lines of those in the United States and Japan of increased full-time training opportunities.

Increasingly in TAFE for example the traditional pattern of part-time study while employed full-time in the workforce is being replaced by full-time studies as a pre-requisite to full-time employment. Such structures offer advantages in terms of providing broad-based preparatory level training, and avoid some of the disadvantages of occupational inflexibility associated with apprenticeship training. The success of the West German approach is a reminder however, of how an effective comprehensive system of tertiary education based on an expansion of part-time training opportunities linked directly to labour market requirements can operate, and we should be prepared if necessary to review our own training structures in light of such experiences.

Other issues relating to the youth labour market concern credentialism.

What will be the attitude of employers to recruitment in a situation where the majority of young people have completed an initial tertiary qualification? A concern is that employers may simply use higher levels of qualifications to reduce the volume of job applicants rather than set out in their recruitment descriptions genuine requirements in relation to job complexity. Thus a higher qualification would be required for jobs in which the skill levels of the tasks to be performed are relatively unchanged. Such use of credentialism would both induce further competitiveness in the youth labour market, and disadvantage those young people not inclined towards academic study competing for lower skilled occupations. It will therefore be important for wage-fixing authorities to determine salaries on the basis of the complexity of tasks performed and degree of skills required, rather than the general standard of credential in the youth labour market.

Clearly we will need to distinguish between 'skill level' and 'credential' in the youth labour market. This will require close association between the education and tertiary bodies and industry representative groups.

CONCLUSION

As we move to the close of the second millennium A.D. we find ourselves in a situation of rapid technological change which many people find incomprehensible and hence frightening.

The new applications of physics and chemistry to the long standing problems of providing warmth, food, and shelter have moved at a pace which outstrips the capacity of our social institutions to readjust to the changed conditions, and we find that our leaders in the physical sciences and the social sciences for example have difficulty in communicating with each other.

It is imperative that we provide for all our citizens an education which allows for development in a number of different directions and the flexibility to change direction later in life; i.e. a tertiary education. In meeting that demand we must also consider related matters in other areas of our social activities.

Thus while universal tertiary education may have come upon us by surprise, as it were, we must now grasp the opportunities provided to ensure that the content of that education leads to the formation of competent, confident, citizens able to play an active role in shaping the society in which they live.

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ALLAN PATTISON

Dr Allan Pattison has been Director-General of NSW Department of TAFE since 1981.

The following speeches given during 1987 are included.

TAFE in New South Wales: Past Achievements and Future Prospects. An address delivered to a Conference of Heads of School, Metropolitan Principals and Regional Directors, in Sydney on 6th April.

TAFE and Higher Education. An occasional address delivered at the 1987 Graduation Ceremony for students at University of Newcastle, on 2nd May.

The same paper was renamed Current Issues in Education and delivered at the 1987 Graduation Ceremony for students at Newcastle College of Advanced Education on 9th May.

TAFE and Government Initiatives. A paper presented at the National Conference on "TAFE in Partnership", at University of New England, from 12th-15th May.

Change and the TAFE Teacher. An occasional address delivered at the 1987 Graduation Ceremony for students of the Institute of Technical and Adult Teacher Education, at Sydney College of Advanced Education, on 15th May.

The Changing Role of TAFE: Access, Accreditation, Awards and Articulation. A paper delivered at the Conference "A New Order for Tertiary Education in Australia", at Darling Downs Institute of Advanced Education in Toowoomba Queensland, from 9th-12th July.

Youth and Future Printing Trade Technology. The welcoming address to a seminar held at the Graphic Arts Club, on 29th July.

Industry and TAFE: A New Relationship? A paper delivered at a Director-General's Seminar on TAFE and Industry in Sydney, on 19th October.

Setting the Scene. An address delivered at the Australian Institute of Tertiary Education Administrator's Conference on "Buildings - The Management Perspective" in Sydney, on 12th November.

3. TAFE IN NEW SOUTH WALES; PAST ACHIEVEMENTS AND FUTURE PROSPECTS.

INTRODUCTION

In large and complex organisations major change is rarely sudden and dramatic. It occurs over a period, in a number of relatively small and discrete steps, as attitudes slowly change and as resources are progressively redirected. The real extent of reform is often not appreciated for another reason: organisations are reshaped along several dimensions at once. Whilst these several changes may have a single underlying purpose, most of those who work in large organisations are able to see only some of the overall direction of reform at any one time.

After a period of growth and of change, it is important for any organisation, particularly one as large and as complex as TAFE, to pause for reflection, and to gain an overview of its achievements. I have now been Director-General of the New South Wales Department of Technical and Further Education for just over five years. It is appropriate for me to account for my stewardship of the Department in that period, and to set out in a positive way what all of us have accomplished through our joint efforts. I also wish to point to what I see to be the more important directions that TAFE should take in the future.

There are a number of broad indicators of the changes that have occurred in TAFE in New South Wales in the last five years. Between 1981 and 1986 enrolments have grown by 33%, from 303 623 in 1981 to 402 572 in 1986. In the same period 14 new colleges have opened, raising the total number from 88 to 102, and the number of full- and part-time staff has grown from 13 919 to 16 521. However these rates of growth need to be considered within the broader perspective of demographic change. Take enrolments as an example. When I became Director-General our enrolments represented 7.3% of the State's population aged 15 and over. By 1984 this participation rate had grown to 9.4%, but since then, despite growth in enrolments, the participation rate has not changed. This indicates that we have entered a period of consolidation, with the enrolment growth that has occurred since 1984 largely keeping pace with population growth, and being selectively targeted to meet economic and social needs.

Growth for its own sake is not a goal for TAFE. What is important is to formulate a set of clear basic principles, and then to act upon them in a way that meets government expectations and community needs.

Quite clearly, and this is an achievement of the greatest significance, TAFE collectively has gained, and maintained, the confidence of the community and of government during the difficult economic times of the 1980's. This confidence has persisted over time and under the administration of several State and Commonwealth Ministers for Education; through the many Commonwealth Ministers for Employment and Industrial Relations, Immigration and Ethnic Affairs and Aboriginal Affairs who have provided funds for TAFE; through two State Premiers; and through Commonwealth Governments of both political complexions. Government confidence has been gained as a result of TAFE's effectiveness in implementing programmes to meet Government policy objectives and new initiatives.

The most obvious indicator of this confidence is the willingness of governments to fund TAFE's growth and quality improvement. In 1981-82 TAFE accounted for 14.1% of the State's expenditure of education. In the 1986-87 State budget TAFE's share of funds allocated to the Minister for Education had grown to 18.1%. In 1980, Commonwealth grants to TAFE represented 10.8% of total Commonwealth grants for tertiary education. This had grown to 12.1% in 1987, having peaked at 12.9% in 1984. Last year the Review of Efficiency and Effectiveness in Higher Education pointed out that between 1979-80 and 1984-85 total public sector funding of education, as a proportion of GDP, fell by 2.4%. For schools the decline was only 1%; for higher education it was a substantial 14%. Yet in such a climate for education TAFE's funds, as a proportion of the gross domestic product, rose by 19%. Quite clearly we have the confidence of governments.

Why is this? In this state in large part it has been because TAFE has been able to articulate, and then to act upon, a set of clear goals and principles in order to determine its priorities.

The Corporate Plan for TAFE in New South Wales, which I initiated upon becoming Director-General late in 1981 and which was released in 1983, set out these principles, which were endorsed by the Minister, and it communicated them to TAFE stakeholders. These principles have subsequently been reflected in TAFE's public voice in annual reports, speeches and submissions. They have been reflected in strategic programs and in other changes effected in our operations. They have been reflected in changes in the allocation of our resources. They have underpinned my priorities as Director-General.

I wish to group my comments around six of these principles:

- meeting the economic needs of the State;
- addressing inequality;
- meeting community needs;
- consultation and participation;

- accountability for the efficient and effective use of public resources; and

- improving the quality of TAFE's educational provision.

ECONOMIC NEEDS

In the early 1980s it was becoming clear that our economic future as a country depended upon a modernisation of industry, and upon improvement to the efficiency of the tertiary sector. As the major supplier of the State's productive skills, TAFE could not afford, by being out of step with these needs, to act as a brake upon economic development. There was an obvious need to bring TAFE into the computer age both in its educational programs and in the efficiency of its administrative operations.

The initial thrust of our educational computing strategy, which was begun in 1983, was to provide general purpose computing facilities as widely as possible, so that all Teaching Schools could benefit. By the end of 1986 over three quarters of all colleges had been provided with at least one general purpose installation, and by the end of 1987 this will have been extended to virtually all colleges. Very large metropolitan and regional centres now have multiple installations.

This program has been backed by appropriate training programs, which have developed confidence in computer usage among TAFE staff, and nearly 9 500 people have participated in these since 1984. The widespread introduction of computing to TAFE colleges since the early 1980s has enabled significant course revision to meet contemporary workplace technology and practices.

Other innovations include the introduction of word processing in secretarial courses; accounting software packages for Business and Administrative Studies students; sophisticated computational and analytical techniques for engineering students; and computer aided design, which has now been extended in some form to about one fifth of colleges. It is only because of the introduction of this equipment that the Department has been able to develop new courses in computer integrated manufacturing to parallel and to stimulate innovation in the State's manufacturing sector. The establishment of a new School of Computer and Information Systems in 1986, to provide a focus for the development of our courses in information technology, would not have been possible without the implementation of earlier decisions to extend the availability of information processing technology for teaching purposes.

The commencement of a program to introduce high technology equipment to key areas of TAFE is of great educational and economic significance. But one should not be seduced by this into the belief that all of TAFE's equipment needs to be at the

cutting edge of the technological revolution, or that we are out of step with industry if it is not. TAFE's responsibility is to teach basic principles, and to develop skills that are appropriate to the full range of current industry practice. Teaching the specific operation of the latest version of a particular technology - whether this be a lathe or a typewriter - is the job of employers, not of TAFE, and current industry usage will always reflect several generations of technology. This is inevitable, it has been a feature of the process of technological innovation since the industrial revolution, and TAFE's equipment acquisition policies recognise it now and will always need to recognise it. I am firmly of the view that our equipment is both of high quality and relevant to the full range of current industry usage. Of course we need to work very hard at providing further improvement to our stock of equipment and facilities.

The extent to which TAFE's priorities have been directed towards meeting the economic needs of the State since the early 1980s is, in the broadest sense, reflected in the close parallels that exist between our enrolment patterns on the one hand, and recent directions in the Australian economy on the other. Strong employment growth in the tertiary sector, and Sydney's growth as a national and international financial centre, have been reflected in the very strong growth in Business and Administrative Studies enrolments during the 1980s. Since 1981 Food School enrolments have grown by close to 50% to accommodate the State's burgeoning hospitality industry, and further growth can be expected in the near future as additional facilities come on stream.

Whilst industry's apprenticeship intakes fell dramatically in 1982-83, TAFE this year has been able to accommodate the strong growth in a number of trade-based Schools that has resulted from the record number of new indentures registered during 1986. TAFE has been able to accommodate this growth through ensuring that economically valuable skills and resources were not dissipated in a period of low demand. Even though this attracted criticism at the time, its wisdom has been proved in hindsight. Our planning will ensure that the pipe-line consequences of these new trade enrolments can be met in future years.

The overall priority that has been given to economic purposes since the early 1980s is reflected in the decline of Stream 6 (presently Stream 1000), or adult education, enrolments in absolute terms by some 5 500 between 1981 and 1986, and in their decline from some 6% to some 3% of total enrolments over the same period. The reduction in the resources devoted to non-vocational courses is even greater than these figures indicate, for there was a growth between 1981 and 1985 of some 37% in the number of student contact hours represented by every hour of teaching effort in Stream 6 courses.

ADDRESSING INEQUALITY

Both State and Commonwealth governments have made it clear that addressing the needs of the disadvantaged ranks with the development of productive skills as a purpose for TAFE. This arises because of the importance of skills and qualifications for entry to paid employment, and because TAFE is more accessible and more flexible than the other sectors of tertiary education. There has been a host of recent initiatives in this area, of which we can all be justifiably proud. These include the provision of Pre-Trade, Pre-Vocational and Management and Community Training Courses for Aborigines, development of the Aboriginal Tertiary Preparation course - which qualifies more Aborigines for tertiary study than does the entire secondary school system; the opening of the Eora Centre to encourage the development of Aboriginal arts and crafts; the adoption by the Minister of the first multicultural education policy to be developed by an Australian TAFE authority; the employment of bilingual course information officers and counsellors, and the opening of the Multicultural Access Centre at Burwood; the Department's rapid response to a range of training programs for the unemployed, frequently introduced by governments at very short notice; the establishment in 1982 of the Women's Co-ordination Unit and the Department's strong support for the State government's Women's Employment and Training Strategy, which was announced by the then Premier in 1984; and rapid growth in provision for adults lacking basic educational skills.

Whilst all areas of the Department have a responsibility actively to pursue the government's equity goals, the creation in 1984 of a Directorate of Special Programs has provided a clearer focus to the Department's efforts to increase equitable participation by the State's citizens in vocational education and training.

When compared to other sectors of post-compulsory education, TAFE has achieved a great deal in this respect. Unequal participation by low income earners and other disadvantaged groups, leading to unequal opportunity to acquire the benefits of education, has been the single major theme of debate on post-compulsory education in Australia in the last decade. In the case of TAFE, however, overall enrolments are almost perfectly representative of all points on the socio-economic spectrum. Recent work carried out within the Department shows that, within the Sydney metropolitan area, those living in areas containing the poorest and most disadvantaged 20% of the population are two and a half times as likely to participate in TAFE basic and preparatory education courses as are those areas containing the wealthiest and most advantaged 20%. There are as many TAFE students in those areas which contain the most disadvantaged 20% of the population as there are university students in the entire metropolitan area, and 29% of these TAFE

students are enrolled in courses at professional and paraprofessional level. Clearly, TAFE has been enormously successful in providing educational opportunities for the disadvantaged.

TAFE's commitment to principles of social equity in its educational program has been paralleled in its own personnel practices. TAFE in New South Wales has a higher proportion of female Principals than any other Australian TAFE Authority, and it has a higher proportion of female senior executives, including those at Assistant Director level and above. The New South Wales Department of TAFE was the first Australian TAFE Authority to introduce a recruitment and training program for Aboriginal teachers (in 1985), and the first Aboriginal Principal of any Australian tertiary education institution was appointed by TAFE in New South Wales in 1986.

My commitment to fairness as a basic principle of public sector employment has been reflected in a number of recent changes to the Department's personnel practices. These include the abolition of additional academic prescriptions as a basis for placement on promotions lists; the introduction of training programs for selection committee members; the introduction of new policies on post-selection counselling and on the provision of references for appeals; and the development of a teacher assessment scheme, the harmony of whose introduction in 1985 stands in marked contrast to the industrial disputation which has accompanied attempts to introduce similar schemes elsewhere.

MEETING COMMUNITY NEEDS

TAFE's responsiveness to community needs has always been one of the characteristics that distinguishes it from other educational sectors. This responsiveness is reflected in the diversity of TAFE's educational program, in its geographical accessibility, and in the broadly representative nature of its student body. Since becoming Director-General I have sought, in a number of ways, to improve this responsiveness.

The Review in 1983 of the procedures for nominating members to College Committees and District Councils had this as its motivation. Accompanying this have been changes to the role of TAFE Principals, designed to ensure that responsibility for resource allocation and course approval decisions which have a local impact is progressively devolved to the local level. This has been accompanied by a progressive increase in, and upgrading of, staff such as regional curriculum development personnel, access co-ordinators, regional administrative officers and outreach workers, to ensure that local responsibility is matched by local resources. In part the reforms to our course development and accreditation machinery which I announced in 1986 were designed to increase the voice of industry and

commerce, as part of the community, in our course development process, and to allow the advanced education sector a say in the development of courses in areas likely to affect it.

These changes reflect the way that the community of TAFE stakeholders should not be defined solely in local or regional terms. The responsiveness of TAFE to more broadly defined community needs is illustrated in recent initiatives such as the Joint TAFE-Schools program, the CSIRO-TAFE Science Centre, and our rapid provision of courses and facilities for new training programs for enrolled nurses.

The provision by TAFE in New South Wales of some 2 200 associate diploma level places, under contract to the advanced education sector, makes its higher education provision equivalent to that of a medium sized college of advanced education. The inclusion of the advanced education sector within the community of stakeholders to whose needs TAFE must be responsive is even more important as a consequence of the priority that I have allocated to the development of articulated arrangements between TAFE courses and those offered in higher education institutions.

Our responsiveness to broader national purposes is shown by a willingness to release staff to serve on important national inquiries such as the Kirby Inquiry into Labour Market Programs, and to assist national bodies such as the Commonwealth Tertiary Education Commission. Both these instances, and the frequency of requests for New South Wales TAFE personnel to be seconded to international aid and development projects, indicate not simply our involvement in wider national and international concerns, but also the high quality of so many of our staff. TAFE's involvement with the wider international community is reinforced by the progressive development of international exchanges with countries such as Japan, the United Kingdom, Canada and China.

CONSULTATION AND PARTICIPATION

TAFE can only respond effectively to community needs if it establishes means of consulting the community, and if it allows the broad spectrum of its stakeholders to participate in the system. Reforms to the means of appointing College Committees and District Councils were introduced in 1983 with this aim in mind, and it was one of the factors underlying the introduction of School Advisory Committees in 1986 to replace the previous Course Advisory Committee system. The new School based committees allow industry, and the broader community, to advise not simply on a single course, but on the nature and structure of a School's educational program, and on the implications for this of technological, structural and legislative changes.

During International Youth Year in 1985 considerable effort was devoted to increasing students' involvement in TAFE. As a result of this effort student associations were formed in 68 colleges, and for the first time a State-wide TAFE students' conference was held to allow TAFE students collectively to express their concerns to the Department.

The production for the first time in 1985 of the State Guide to TAFE, and its commercial distribution through news agencies, was a creative innovation in making information about TAFE courses more readily accessible to the public. It has borne fruit in this year's enrolment period, with colleges reporting a significant improvement in prospective students' knowledge of courses prior to enrolment.

Since becoming Director-General I have held firmly to the view that the principle of consultation and participation must apply first and foremost to the Department's staff. To this end I have established regular formal consultations between myself and the principal unions covering the Department - the New South Wales Teachers' Federation and the New South Wales Public Service Association - and have encouraged regular contact and discussions of a more informal nature. In addition I have adopted as a principle the extension of employee membership on major departmental committees and working parties.

The climate of mutual respect which these steps have encouraged has led to a sharp reduction in the level of industrial disputation in TAFE in recent years. This has been a major factor in creating and maintaining community confidence in TAFE, the outcome of which has been a continued government willingness to support public vocational education and training. I am confident that the consultative machinery for the negotiation of a new award for TAFE teachers, the establishment of which I announced in January of this year, will see none of the industrial strife which accompanied pre-emptive announcements of varied working conditions for TAFE teachers in two other Australian States in 1986.

EFFICIENCY AND EFFECTIVENESS

Continued public support for TAFE depends not only upon us continuing to meet the economic and social needs of the State. It also depends upon our ability to meet those needs efficiently and effectively, and upon our being able to account publicly for our use of public resources. This has never been more so than in the current climate for public administration.

During the last five years a number of important administrative and managerial reforms have been effected in TAFE in New South Wales. Administrative reform is a task of fearsome complexity in an organisation with an annual budget of some $450 million, with

some 16 500 staff and dispersed over 103 major administrative centres, and providing services in every Local Government Area in the State. That so much has been accomplished is a major tribute to all who have contributed, but in particular to the administrative staff of the Department.

One of the most important changes that has been effected is a clearer separation of the roles of Principals and Heads of School, and the resulting delineation of the college as the basic educational resource management unit of TAFE. This has enabled many important resource management efficiencies to be introduced. Included among these is greater college accountability for the use of an annual bank of teaching hours; the development of mechanisms for consultation between adjacent colleges before decisions to offer courses, or stages of a course, are made; and the development of enrolment priorities to ensure that government priorities are met.

A new and more rational senior management structure was introduced in two stages in 1985 and 1986, and this was accompanied in 1986 by a major overhaul of departmental committees, designed to reduce the resources devoted to committee work and to make planning and decision-making processes more effective.

In recent years substantial effort has been devoted to over-hauling and streamlining the administrative systems which we inherited from our period of rapid growth in the 1970s, many of which were appropriate to a TAFE that now no longer exists. Just as TAFE's educational program needed, in the early 1980s, to be brought into the computer age, so too did many of its administrative systems. In many instances the major achievement is that we have been able to lay the groundwork for future reform. Our examinations, student records, finance and personnel records systems have yet to be totally modernised, but I am confident that present strategic planning, and the level of resources currently being invested in their improvement, will see this goal accomplished by 1989. Similarly, whilst our enrolment procedures have become considerably more systematic and efficient as the result of the enrolment task force which was established in 1983, much effort will need to be expended before the enrolment process ceases to be confusing and unwieldly for many students. The feasibility of introducing a system in which prospective students apply for entry in advance of enrolment will be one of my priorities for investigation in 1987.

Whilst much remains to be done, the efficiency of our present administrative systems has been considerably increased by the establishment of the Administrative Training Unit to ensure that staff no longer develop administrative skills in a haphazard and unplanned way.

Steps to increase our efficiency and effectiveness have been accompanied by an increased emphasis upon accountability. A Directorate of Audits is to be established in 1987, a Planning and Evaluation Support Unit has been established to advise and assist in the conduct of program performance evaluations, and greater emphasis is being placed upon local accountability in the development of strategic plans for capital facilities.

QUALITY IMPROVEMENT

If I have had one over-arching goal as Director-General it has been to improve the quality of TAFE's educational offerings, as a result to improve its ability to meet community needs, and to raise its standing in the eyes of the community. Quality implies many things; relevance to industry, community and individual needs; efficiency; effectiveness; appropriateness of resources; flexibility; and timeliness are some of these. Over and above the changes that I have already outlined, a number of important initiatives have been taken to improve the educational quality of TAFE.

The most significant of these has been the several reforms to the structure and operation of our Teaching School system. Heads of School have been given a clearer responsibility for the quality of their courses, and have been relieved of much of their previous day-to-day responsibility for the management of resources. The Schools have been grouped into faculties to encourage greater co-operative efforts in course development, and significant effort has been devoted to encouraging the articulation of courses both within and between Teaching Schools.

In 1986 significant additional resources, in the form of new Heads of Division positions, were provided to Schools to enable them more effectively to liaise with industry and the community. One of the most important reforms has been a restructuring of our course development and accreditation machinery. This has entailed a new and enhanced role for the Board of TAFE Studies, and the introduction of mechanisms for ensuring rigorous external scrutiny by industry, the community and other educational sectors of new course proposals.

The quality of our programs ultimately depends upon the quality of our teachers. A reform which I particularly value is the introduction at the beginning of 1985 of a revised system of teacher education for new full-time teachers. Developed in conjunction with the advanced education sector, the new system has as its principal consequence that new full-time teachers are no longer required to commence teaching without having undergone an extended period of teacher training. This change should be seen alongside the introduction of a revised teacher assessment scheme and the introduction of revised guidelines for placement upon promotions lists.

Improvement to the quality of college services has been one of my particular priorities in the last five and a half years. Reflecting this priority the number of positions in the TAFE Counselling Service has been increased from 16 to 115 since 1981, with six of these new positions being designated for bilingual counsellors.

A policy for child care in TAFE colleges was announced by the Minister in 1983, as a result of which 1 000 child care places are to be created by 1990. An increased priority for child care has resulted in facilities now being available in 15 colleges, and provision for child care facilities is now being included in plans for most new colleges.

Since 1981 the number of colleges with staffed libraries has increased from 47 to 73. The quality of library services available to students has been further increased by the progressive adoption of computerised on-line cataloguing, and by the adoption of new and improved building standards for college libraries.

The establishment of TAFENET in 1983, in conjunction with the commencement of our educational computing strategy, was an important step in improving college-based services. With a present staff of 75, TAFENET provides essential servicing and software back-up to college computer facilities.

TAFE has made considerable progress in meeting its responsibilities in the area of occupational health and safety, assisted by Workplace Committees now operating in most Colleges.

We have expended considerable resources in the last decade, some $100 million, to upgrade and improve facilities and equipment with improvements in safety being accorded priority.

Principals have admirably discharged their responsibilities in this area by acting on the advice of committees and including needed improvements in their minor works and maintenance programs. This adds to the quality of our provision.

It is particularly important that the leadership given by our Heads of School through the introduction of high standards of safety within workshops is continued. There are gaps in this regard which must be filled by raising teachers' awareness to hazards and methods to minimise risks.

The health and safety of students has always been a priority in TAFE and through our Occupational Health and Safety Officers we can identify problems and accord high priority to their resolution.

A significant initiative in improving the quality of student life in TAFE was the introduction in 1986, as the result of a project conducted during International Youth Year, of student accommodation officers in five colleges. Their number has since been increased to nine.

FUTURE DEVELOPMENTS AND PROSPECTS

If public administration in the 1980s provides us with any lesson, it is that few arms of government are immune from competition. A major testament to the effectiveness of TAFE in the 1980s is that the public and governments have continued to have confidence that it can meet economic and social goals. In contrast to other publicly funded services, of which the postal and telecommunications services are good examples, we have seen no substantial growth in private sector competition for TAFE's traditional activities. This is despite strenuous efforts in some quarters to stimulate such competition. If anything, our problem is that too much is asked of us, and too frequently TAFE is asked to assume skill development responsibilities that are more appropriate to employers themselves. In such a climate TAFE must have a clear sense of its purpose and a well articulated set of principles upon which to base its priorities.

One of these principles must be that we have no need to fear competition, with which we have lived in some areas of our operations, for example secretarial training, for many years. TAFE will survive future competition as it has in the past - through the excellence and quality of the programs that it provides. For the foreseeable future quality improvement, and not growth, must be our over-riding goal. It will only be through striving for quality that we can continue to meet industry, community and government expectations.

What we must avoid in the future is not competition, but the tendency towards monopoly. TAFE's role in the skill development process differs from that of employers, who have a key role to play in the development of enterprise - specific and equipment-specific skills, and in providing the practical training that develops and refines the basic principles learned in TAFE. TAFE will do a disservice to Australia's skills base if it attempts to assume responsibility for the total skill development processes.

Whilst governments have supported TAFE in recent years, in a climate which increasingly encourages restraint in government expenditure, we must be crystal-clear about our priorities. In the broad sense we have two absolute priorities: the development of productive skills for the economy, and the promotion of equity through increasing access to recognised skills and qualifications on the part of the disadvantaged. This implies many things about our operations. One of these is a

continued examination of the resources that are spent on courses which promote personal enrichment and creative use of leisure, but whose economic productivity is marginal, and which have only the most tenuous role to play in promoting educational equity. In saying this I am not referring only to those courses currently classified in Stream 1000.

In the context of current developments in industry restructuring and technological innovation, a priority for the development of productive skills will require us to devote more resources than has hitherto been the case to advanced and post-basic courses at both trade and technician level, in order that TAFE can actively assist in upgrading the skills of the existing work force. This priority could well be at the expense of pre-employment activities. We will also need to pay more attention to training programs for operator level workers, the skill content of many of whose jobs has been upgraded by technological change.

Both of these emphases will require us to devote a higher priority in future to upgrading and certifying the technical competence of TAFE teachers, and at the same time there will be a need to devote resources to the teaching skills of part-time teachers.

The current willingness within industry to question traditional work practices, to promote multi-skilling, and to redefine work boundaries is of the utmost importance for TAFE. It will be essential for our internal organisation and our operating procedures to demonstrate a high degree of flexibility to match that being demonstrated by employers and unions. This flexibility will be evidenced by a willingness to question existing boundaries between Teaching Schools; by more joint programs between Teaching Schools; by more flexible attitudes towards what constitutes a standard teaching week or teaching year; by a greater willingness to deliver courses off-campus and in employer premises; by entering into joint ventures with industry and unions; and by a greater incorporation of appropriate modern communications technology into the teaching program.

The urgent need for this flexibility was one of my main reasons for establishing in January of this year the machinery for a re-negotiation of the TAFE teachers' award in this State.

Flexibility in responding to local needs will also be increased by a future devolution to colleges of many services and functions presently managed centrally. The rate at which college autonomy evolves will depend upon a number of factors. These include the competence of college management; the educational maturity of colleges; the level of college-based quality control; and the demonstrated competence of teaching staff and educational leadership. Whilst believing that a

progressive move toward greater college autonomy is necessary in the interests of flexibility, my first commitment is to the quality of the services provided by TAFE, and to a rational and efficient use of available resources.

An issue which will also need to be addressed in the future is TAFE's relationship with other sectors of tertiary education. The recent State Government decision to create the NSW Institute of Art Education establishes a new relationship between TAFE and the advanced education sector. The initial components of the Institute will be the City Art Institute and the Art School at East Sydney Technical College. It will be possible for further components to be added later.

This new arrangement will extend the educational opportunities for art students by expanding the range of programs available to them through articulation arrangements.

Consistent with the objective of wishing to provide greater educational autonomy for individual TAFE colleges and groups of colleges, and the creation of the NSW Institute of Art I would wish TAFE to give consideration to the nature of future relationships to be developed with the higher education sector. TAFE has had a long and honourable association with this sector of education having contributed much to the development of both the university and advanced education systems. This situation will not change in terms of the educational objectives of TAFE, universities and Colleges of Advanced Education. However, I believe what should change is the way TAFE's effort is perceived by the higher education sector and the community at large. For example now is the time to give serious consideration to establishing formal linkages and relationships between TAFE and higher education in much the same way as the American Junior College networks interact with the university sector of that country. This could, I believe, be a particularly attractive role for TAFE especially if the so-called binary system of higher education were to be abandoned in favour of a higher education system which included a state university system incorporating present-day Colleges of Advanced Education. I envisage that a TAFE developed Junior College network would include all aspects of TAFE's present day activities and not just those parts which offer Associate Diploma and Diploma Courses. This type of development will be given an airing over the next twelve months.

Earlier in this address I mentioned the willingness of governments to continue to fund TAFE's growth and quality improvement. Although this has indeed been the case in the past, it must be recognised that historic funding levels may not continue in the future. As you are no doubt aware, Governments at all levels are facing very tight budgets as they seek to reduce the size of their deficits. It is possible, therefore,

that both Commonwealth and State budgets might require changes in some established strategies. Thus the effective and efficient management of resources will become even more important than in the past and there will be an even greater need for TAFE to be accountable for its use of public funds. The prospect of financial cutbacks with their unpleasant educational consequences must play a part of our planning and management strategies over the next few years, and I ask departmental managers at all levels to be sensitive to this prospect. Such developments will require calm responses to community pressures and loyalty to the central theme of our programs, namely the provision of quality education in an equitable and efficient manner.

In conclusion I would like to say that I look forward to working together with all staff in the future to achieve the goals for TAFE that I have outlined in this paper.

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4. TAFE AND HIGHER EDUCATION

As a nation we have contributed a good part of the nation's intellectual and financial resources towards the provision of an Australian tertiary education system and over the past decade major changes have occurred to this system. One of the most significant of these has been the development of Technical and Further Education or TAFE as it is more generally known. The University of Newcastle has close connections with TAFE having been established as a College of the University of New South Wales, a University which grew out of Sydney Technical College and having been located initially at Newcastle Technical College.

In NSW during the past decade, enrolments in TAFE have virtually doubled, growing from 199 000 in 1975 to 405 000 in 1986 with the number of TAFE Colleges growing from 63 to 102 in this period. The importance of TAFE within the spectrum of tertiary education choices available to young Australians is under-scored by the fact that nationally, universities, colleges of advanced education and TAFE now take about 20% of each cohort of Year 12 school leavers.

Currently there is a high demand for all forms of education in Australia as education, but particularly tertiary education, is seen as a major determinant of both career and social mobility. There is also a growing need and demand for recurrent education stemming from changes in employment structures and occupations as the result of technological changes and industry restructuring. Recurrent education provision helps some employees to update and diversify their skills and helps others who have been retrenched or overwhelmed by technological change to retrain and prepare themselves for a different occupation.

The huge investment being made in tertiary education in terms of both physical and intellectual resources has led to the need for developing clearer relationships between programs offered by each component of the tertiary education sector to ensure that those programs truly reflect Australia's needs and that resources are used effectively and efficiently. For example, it is necessary to ensure that students who move from one program to another do not needlessly repeat areas of study simply because they move from one educational institution to another.

In economic terms this is important because duplication of effort involves an unproductive use of resources and leads to lost opportunities for the would-be students who cannot gain access when a place is occupied by a student repeating work done elsewhere. In personal terms for the student, needless

repetition of work done elsewhere is also important as it increases course length, increases the boredom of further study and makes the prospect of further study far less attractive.

In NSW in recent years there has been a growing awareness of these problems and the need for greater effort by tertiary institutions to develop procedures and attitudes which will lead to greater co-operation and mutual respect of the efforts of each component of the tertiary education industry. Much still needs to be done in relation to this problem and NSW TAFE will continue to take an active role in this work.

It is logical that TAFE should take a leadership role in this matter because much of its work already extends into the higher education sector in a number of ways. The most obvious are the advanced education courses offered within TAFE Colleges under contract to the Higher Education Board. These courses cover the fields of Art and Design, Science, Engineering, Business, Food and Rural Studies.

TAFE also plays an important part in preparing students to enter higher education. In 1986 there were roundly 13 000 enrolments in matriculation and tertiary preparation courses. These courses have been specifically designed to meet the needs of particular sections of the community. For example, adults whose initial schooling has not provided an adequate basis for higher education study make up the majority of students in these courses. Another example is the Tertiary Preparation Course which is accepted as an alternative entry qualification by most higher education institutions. The Tertiary Preparation Course for Aborigines is a very significant initiative for promoting Aboriginal access to higher education. For example, in 1985 this TAFE program enabled more than four times as many Aborigines to qualify for entry to higher education as those who qualified by means of the Higher Education Certificate. Through these and other preparatory education programs, TAFE plays an extremely important role in providing access to, and equity in, higher education.

TAFE's activities in higher education also extend to the articulation or linking of TAFE vocational courses offered at several colleges of advanced education including the Riverina-Murray Institute of Advanced Education, the Mitchell College of Advanced Education and the NSW Institute of Technology. Articulation arrangements now exist in Business Studies, Engineering, Computing and Rural Studies and provide clear advantages for all parties involved. For the student, it eliminates needless repetition of course material and often provides easier access to education in the early years of a course through the large network of TAFE Colleges. For TAFE,

the arrangements provide opportunities to present courses which are not only of academic value and merit in their own right, but also open doorways to educational opportunities which otherwise would not exist for a good number of its students. For the higher education institutions it provides a rich source of students with a proven ability and achievement who can be drawn into later stages of courses. These students often bring with them experience, maturity and motivation which adds much to the academic environment.

An important recent development in tertiary education has been the adoption of a uniform national system of TAFE awards and flowing from this the establishment of the Australian Council on Tertiary Awards. Amongst other things ACTA has the responsibility to:

- promote consistency throughout Australia in the nomenclature used for tertiary awards and in the standards of courses leading to those awards; and to

- encourage the development of consistent relationships between courses and the relationships between courses and their associated awards.

The work of the Council, because of the autonomous nature of universities, is effective only with TAFE and Colleges of Advanced Education. Anomalies caused by the non-participation of the Universities are serious and need to be addressed by the Council because of the important role it needs to play in promoting a view of tertiary education which is supportive of student mobility and course articulation.

The common national nomenclature for TAFE awards also recognises the equivalence of middle level or paraprofessional and some professional level courses in TAFE and those offered by some Colleges of Advanced Education. This new system gives parity of esteem to awards in both sectors at the Associate Diploma and Diploma levels.

These developments are important in economic terms. They have not been promoted simply to provide TAFE with an inflated opinion of itself. It should be recognised that our society accords a hierarchy of esteem to academic awards and educational credentials play an important part in the competition for jobs. Consequently equivalent academic achievements should be held in equal esteem and not differentiated on the basis of the title of an award. Also, academic arrangements which allow students to move readily from one sector of education to another and to receive appropriate credit for previously completed studies through the provision of significant levels of advanced standing are resource efficient from the point of view of both the student and the taxpayer and are an important means of extending educational opportunities and of promoting an important aspect of social equity.

Widespread developments such as these will inevitably lead to a blurring of divisions which currently exist in tertiary education. Contributing to this blurring of system boundaries are other important developments such as the assumption of responsibility for advanced education courses by the University of Wollongong; moves by the NSW Institute of Technology for reconstitution as a university; developments in New South Wales of new arrangements for the co-ordination of higher education and the recent announcement of a new relationship between TAFE and the advanced education sector by the establishment of the NSW Institute of Art Education.

Increased public debate about the future directions of higher education and changes in the nature and roles of existing institutions needs to concentrate on the nature of the relationship between TAFE and higher education. I have previously discussed this relationship in my paper TAFE in New South Wales: Past Achievements and Future Prospects (see p.72).

In conclusion, I appreciate the opportunity to present these views and to set out what I see as some of the important issues affecting tertiary education in New South Wales.

5. TAFE AND GOVERNMENT INITIATIVES

INTRODUCTION

Many areas of government policy have a substantial impact upon the operation and administration of TAFE. In recent years there has been a tendency for both State and Commonwealth Governments to see TAFE's educational programs as appropriate vehicles for the achievement of a broad range of policy objectives. This, together with other factors has resulted in TAFE developing rapidly over the past decade. Not only have enrolments more than doubled but TAFE's educational profile has changed in response to economic and social movements.

I have already discussed in my paper TAFE in New South Wales the two broad purposes that the government expects TAFE to serve: the first economic, the second social (see p.70).

In regard to the first of these purposes, TAFE is seen as an appropriate vehicle to implement government training and retraining policies because of its strong links with the labour market. As CTEC (1986a, p.80) pointed out, a high proportion of all TAFE students are in TAFE because of their labour market circumstances. Examples include apprentices who are required to attend TAFE under the conditions of their indenture; displaced workers seeking new vocational directions; employees wishing to upgrade their skills and qualifications; well qualified school leavers seeking marketable skills; and people from disadvantaged groups who undertake TAFE courses to improve their basic skills and long-term employment prospects.

In regard to TAFE's contribution to social equity, although governments believe that each of the three sectors of post-secondary education have important roles to play in a comprehensive attack on educational disadvantage, TAFE is seen as the sector which is most open in terms of providing access to education and the most widespread in terms of the number of colleges and their geographical spread. Consequently TAFE is the main vehicle for promoting concepts of social equity in relation to educational opportunities.

GOVERNMENT POLICY OBJECTIVES WHICH AFFECT TAFE

In recent years, there have been a wide range of specific State and Commonwealth government initiatives to which TAFE has been expected to respond. These generally fall into four main areas.

Youth Policies

The issue of unacceptably high levels of unemployment of young people has been a major concern of governments throughout the 1980's and a number of educational and labour market strategies have been introduced to try to alleviate the situation. The most important of these have been designed to extend the range and improve the quality of the system of vocational education. The aim of raising levels of educational achievement and standards of vocational preparation, is to ensure that all young people reaching the end of compulsory schooling will have constructive options available in education and training leading to recognised qualifications.

These options now include full-time education, structured combinations of employment, education and training, and opportunities for further education after entering the labour market.

There are a number of State Government schemes operating which meet this aim, these include the Youth Guarantee in Victoria and the Youth Employment Scheme (YES) in New South Wales each of which provides combinations of on-the-job and off-the-job training.

The Commonwealth Government plays a very important part in providing education and training opportunities for young people. Initiatives include the Participation and Equity Program (PEP); the Australian Traineeship Scheme (ATS); funding for some Trade-Based Pre-employment courses and provision of income support for young people participating in these programs.

Adult Training and Retraining

Government responses to economic changes, particularly those relating to the downturn in the manufacturing sector, changing employment patterns and the need to restructure industry so as to maximise the benefits of technological advances and developments, have a significant impact on TAFE. Not only is there a need to develop programs to provide initial training in various occupational areas but there is also a need to retrain workers affected by changing work practices and new technology. Retraining can involve updating and diversification of skills or complete retraining for employees who are dislocated or retrenched.

Examples of programs include:

- The Labour Adjustment Training Arrangements (LATA) which was a Commonwealth Government initiative aimed at retraining retrenched workers from the colliery and steel industries and industries providing goods and services to the steel industries;

- The Adult Training Program (ATP) which incorporates the former Skills in Demand (SID), General Training Assistance (GTA) and special training programs for disabled and special needs job seekers. ATP is designed to provide support disadvantaged job seekers and for retraining for unemployed adults.

Trade Training

An important area of Government policy involves trade training. States and territories bear the costs of administering apprenticeship and related labour market programs to meet specific needs. Examples include accelerated trade training, trade-based pre-employment and adult trade training courses. Programs such as these are intended to meet skills shortages or act as counter-cyclical measures during downturns in the economy.

A high proportion of the Commonwealth Department of Employment and Industrial Relations funding is allocated to trade training programs through the Commonwealth Rebate for Apprentice Full-time training (CRAFT) Scheme; the Special Apprentice Training Program; and funding of trade-based pre-employment courses.

Access and Equity Programs

During the last decade there has been increasing concern that despite increased participation in education in Australia there was still unequal participation in the upper years of secondary education and in tertiary education by the poor, Aborigines, women and girls, the geographically isolated and members of ethnic groups.

Within state governments there has been a concerted effort to counter discrimination and to promote the concept of equal opportunity. In NSW for example, a number of important state initiatives were taken to make the machinery of government more responsive to the needs of the total community. Discrimination in the work place was legislated against and various bodies were established such as the Equal Opportunities Tribunal, the Ethnic Affairs Commission; the Ministry of Aboriginal Affairs and the Women's Co-ordination Unit in the Premier's Department. As a result of these, a number of initiatives were developed in Aboriginal education, women's education, multi-cultural education and basic education. Funds for these were provided from State sources.

The Commonwealth Government has also provided assistance through funding of programs for Aborigines and for migrant education. The Commonwealth Tertiary Education Commission has also allocated funds for TAFE to provide special programs for disadvantaged groups.

TAFE'S RESPONSE TO GOVERNMENT INITIATIVES

The extent to which TAFE's priorities have been directed towards meeting the economic needs of the country and implementing government objectives is reflected in the changes that have occurred in TAFE enrolment patterns over the past few years.

Trade and engineering areas have shown declining enrolments over the past five years (see Table 1 for enrolments by NSW TAFE Teaching Schools). Enrolments in Applied Electricity have declined by 9%, Engineering Trades by 3.5%, Mechanical Engineering by 5.4% and Plumbing and Sheetmetal by 19%. Overall enrolments in trade courses have declined by 15%. However this has been balanced by a 17% increase in enrolments in post-trade courses.

The areas of growth have been in the business, hospitality and service areas with enrolments during the past five years in Business and Administrative Studies increasing by 63%; Secretarial Studies by 25%; Food by 36%; Home Science by 30% and Hairdressing by 36%. Other areas of growth have been in the general education, preparatory and access areas, with enrolments in the School of General Studies increasing by 80% and preparatory type courses showing an overall growth of 37%. (See Table 2).

The main increase in enrolments in general education courses has occurred in basic education such as Reading and Writing for Adults and preparatory courses such as the Diploma Entrance, Certificate of General Education and Adult Matriculation. This appears to be a recognition of the need to improve general levels of education by people who have left school in order to acquire vocational skills and qualifications necessary for entry into employment.

An analysis of the socio-economic status (SES) of the TAFE student population was undertaken by NSW TAFE. This has shown that approximately 60% of students in preparatory courses are from low SES backgrounds, 25% from average SES backgrounds and 13% from high SES backgrounds. These figures reflect the importance of TAFE in providing access to further education for people in the lower socio-economic groups.

TAFE'S EDUCATIONAL PRIORITIES

TAFE funding over the past decade has been characterised by:

- an increase in funds, albeit at a declining rate of growth in recent years;

- the evolution of a State/Commonwealth partnership in the promises of funds for TAFE; and

SCHOOL	1982	1983	1984	1985	1986	% Change 1982-86
Applied Elec.	13 346	13 157	12 364	12 107	12 141	- 9.0
Applied Sci.	4 685	4 709	4 569	3 996	3 503	-25.2
Art & Design	14 188	13 063	14 508	14 701	14 822	+ 4.5
Auto & Airc.	11 899	11 824	11 988	11 429	11 759	- 1.2
Bio. Sci.	4 187	4 786	5 416	5 175	5 029	+20.1
Building	20 599	19 530	20 583	20 369	20 835	+ 1.3
Bus. & Admin	38 851	44 779	53 543	57 779	63 184	+62.6
Civil Eng.	4 395	3 963	4 024	4 254	4 303	- 2.1
Elec. Eng.	6 927	7 652	8 365	8 300	8 442	+21.8
Eng. Trades	25 912	26 051	26 355	24 679	25 016	- 3.5
Fashion	28 726	29 079	30 378	30 655	32 714	+13.8
Food	7 713	8 546	9 414	10 912	10 514	+36.3
Footwear	166	130	147	217	180	+ 8.4
Gen. Studies	33 045	42 384	48 557	51 684	59 685	+80.3
Graphic Arts	2 697	2 564	2 568	2 668	2 698	0.
Hairdressing	2 316	2 402	3 016	3 464	3 623	+36.1
Home Sci.	14 837	18 312	21 443	19 752	19 298	+30.1
Ind. Arts Ed.	18	1	-	-	-	-
Mech. Eng.	5 608	5 285	5 767	5 240	5 306	- 5.4
Navigation	3 654	4 378	6 080	6 281	6 589	+80.3
Plumbing	6 287	4 940	5 076	4 857	5 051	-19.6
Rural St.	11 278	11 967	13 701	14 195	14 533	+28.9
Sec. Studies	31 872	33 898	37 154	36 568	39 903	+25.2
Textiles	1 582	1 639	1 793	1 834	1 672	+ 5.7
Vehicle Tr.	4 725	4 721	5 169	5 348	5 444	+15.2
Non-Schools	26 244	27 271	36 358	35 257	26 328	+ 0.3
TOTAL	325 757	347 031	388 336	391 721	402 572	+23.5

TABLE 1 NSW TAFE ENROLMENTS 1982-86 TEACHING SCHOOL

STREAM	1982	1983	1984	1985	1986	% Change 1982-86
1	1 158	1 333	1 866	2 008	2 435	+110.3
2	76 991	107 284	120 499	127 882	131 993	+ 71.4
3a	51 916	47 757	43 854	41 462	43 966	- 15.3
3b	13 166	13 411	16 085	17 076	15 651	+ 16.6
4	110 348	98 529	111 654	109 809	118 787	+ 7.6
5	56 812	67 282	81 422	80 650	77 745	+ 36.8
6	15 366	11 435	12 956	12 834	11 993	- 22.0

Overall increase 23.6%

TABLE 2 NSW TAFE ENROLMENTS 1982-1986 BY STREAM

- the increasing use made of TAFE by Commonwealth Departments outside the education portfolio. The Departments involved include:

- Department of Employment and Industrial Relations which funds a variety of labour market programs;

- Department of Immigration and Ethnic Affairs which funds Adult Migrant Education Programs; and

- Department of Aboriginal Affairs which funds vocational trade training programs for Aborigines.

Approximately 80% of TAFE's funding comes from the State Government. The remaining 20% is from Commonwealth sources. In the case of State Government policy initiatives, there are few problems encountered in the establishment of educational priorities and in the allocation of resources. NSW TAFE, like most other State TAFE systems, is responsible to a single Minister who, under state legislation, has clear powers in relation to the educational programs of TAFE.

The same clear Ministerial authority for assessing priorities in matters that affect TAFE does not exist in the case of Commonwealth Government initiatives.

TAFE has been used increasingly as a vehicle for the achievement of a variety of Commonwealth policy objectives. However the Commonwealth has reduced its capacity to co-ordinate these activities often with the result that some programs have conflicting objectives not only with objectives set by the State but in some cases with those of other Commonwealth Programs. (NSW TAFE, 1985, p.45-46).

The fragmentation of the Commonwealth's control over its own TAFE policy objectives is only one of the results of the lack of co-ordination. From the point of view of the State, the growth of Commonwealth funding sources outside of CTEC's triennial planning process has added substantially to the administrative burdens and costs imposed upon TAFE. The complex administrative arrangements which are entailed in CTEC's triennial planning processes are compounded by the burden of liaising with a growing number of Commonwealth departments, each with its own particular administrative and accounting procedures. This involves the preparation of financial estimates and detailed submissions outlining course offerings, the identification of available human and physical resources, the allocation of resources and regular monitoring and evaluation of the use of Commonwealth funds which emanate from a variety of sources.

upon counselling facilities, increased demand for student amenities and services, a need for innovative approaches to curriculum and demands upon staff development resources. Many of these are funded by CTEC recurrent grants without their level being determined by direct reference to the demands imposed by other Commonwealth programs.

Within areas such as Aboriginal education and migrant education, the existence of multiple funding sources leads to conflict and competition between program objectives and program guidelines which frequently operates to the disadvantage of students.

The provision of funds through the Department of Employment and Industrial Relations has been a matter causing special difficulty. A particular problem has been the delay in receiving funding not only for running courses, but also for tasks which TAFE must undertake if it is to be able to meet the educational deadlines set by the Department. In many instances this has led to funds arriving well after courses have commenced.

Of even greater concern, however, is the effect on TAFE of Commonwealth Government initiatives which are implemented without consultation with TAFE and which have the potential to cause a considerable drain on TAFE's resources. An example of this is the recent Disabilities Legislation which could require the provision of a range of new courses for trainers and residential care workers as well as for direct services to people with a variety of physical and intellectual disabilities. Unless there is consultation and the provision of additional resources, TAFE's ability to meet the new demands resulting from the legislation could only be at the cost of existing programs.

At a time when TAFE is facing unprecedented demand for its courses, the lack of consultation about Commonwealth Government initiatives that will impact on TAFE is of great concern, and has the potential to adversely affect TAFE's ability to meet other priorities.

FUTURE DIRECTIONS

TAFE is being subjected to an increasing range of demands for its product. The demands come from employers with their need for a properly trained workforce, from governments with their social and economic objectives and from students with their need to gain acceptable employment and living skills.

In order to help stimulate economic growth, governments are looking at the need to more effectively utilize advanced technology; to increase the quality and effectiveness of manufactured products; and have acknowledged the critical importance of providing the appropriate skills needed by the labour force to restructure.

In order to help stimulate economic growth, governments are looking at the need to more effectively utilize advanced technology; to increase the quality and effectiveness of manufactured products; and have acknowledged the critical importance of providing the appropriate skills needed by the labour force to restructure.

As a major provider of productive skills for Australia's workforce TAFE has a crucial contribution to make towards national and local economic recovery. This includes a positive response to new education and training needs for industry as they emerge during the restructuring process, together with the provision of retraining programs and assistance with the development of new employment areas in the tertiary sector.

In addition the CTEC (1986a, p.45) believed that in the future:

- there will be demographic pressures on TAFE enrolment levels for the foreseeable future;
- TAFE capacity needs to expand to cope with existing excess demand for TAFE places;
- Government policies for sustained growth in full-time education provision and for increased participation in education and training programs for all age groups are causing sustained growth in demand for TAFE places; and
- greater retention to the end of secondary school and other factors are leading to increased demand for full-time places in TAFE.

The Committee also identified three major and inter-related Commonwealth objectives to be pursued through TAFE. These stem primarily from the Commonwealth's responsibility for economic development, which embraces not only economic factors but the social outcome as well. These objectives are:

- continued growth in the TAFE system as a precondition to the achievement of a wide range of other objectives;
- improved opportunities through TAFE for disadvantaged groups; and
- principally as a consequence of the first two, the fostering of cross-sectoral developments which could engage TAFE in co-operative arrangements with schools and other sectors of tertiary education.

Within this context of increasing demand for TAFE, there will need to be a continuing government commitment to the provision of capital and recurrent resources for TAFE and of consultation and co-ordination of policies and priorities between TAFE and Commonwealth organisations who wish to use TAFE's services.

CONCLUSION

Quite clearly TAFE has gained and maintained the confidence of the community and of governments through the difficult economic times of the 1980's. The most obvious indicator of this confidence is the willingness of governments to fund TAFE's growth and quality improvement and give it priority over a number of other calls on the public purse. For example in 1981/82 in NSW, TAFE accounted for 14.1% of the State's expenditure on education. In the 1986/87 NSW State Budget, TAFE's share of funds had grown to 18.1%. In 1980, Commonwealth grants for TAFE represented 10.8% of total Commonwealth grants in tertiary education. This had grown to 12.1% in 1987, having peaked at 12.9% in 1984. CTEC (1986b) pointed out that between 1979-80 and 1984-85, the public sector funding of education, as a proportion of Gross Domestic Product (GDP) fell by 2.4%. For schools the decline was only 1% but for higher education it was a substantial 14%. Yet in such a climate, TAFE's funds as a proportion of GDP rose by 19%.

Another measure of the confidence which governments and others have in TAFE, has been the increasing level of demands by governments, industry and the community for TAFE programs. Enrolments in TAFE would not have doubled over the past decade if TAFE had not been providing a wide range of successful vocational, preparatory and access courses to meet Australian education and training needs.

However, TAFE's capacity to meet the increasing demands likely to be placed on it by both demographic factors and government objectives will be limited without additional funding and rationalisation of some government objectives. There is a danger that if this does not occur, TAFE's provision could be distorted. There is also a danger that the quality of provision will suffer due to conflicting demands, inadequate resource levels, and lack of adequate lead time for curriculum development and provision of sufficient educational support services.

If TAFE is to be able to meet the increasing demands being placed upon it, there needs to be co-ordinated planning of objectives, and greater consultation with TAFE.

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6. CHANGE AND THE TAFE TEACHER

TAFE offers a vocational education system which is internationally recognised as being the most satisfactory way of developing productive skills. It combines learning with earning; it contains both on-the-job and off-the-job instruction; and it involves a co-ordinated program between an employer and an educational institution.

The partnership between employer and educational institution contained within this dual system is of great importance to TAFE. We rely upon it to produce teachers with the high professional standards that are the most important component of a quality TAFE system. It is only through a productive partnership between TAFE and the advanced education sector that some of the more important recent reforms in TAFE teacher education have been achieved. Among these are college-based teacher education programs for country teachers; and the introduction in 1985 of a new Diploma of Teaching program which ensures that new full-time teachers are not required to take responsibility for TAFE classes without having first undergone an extended period of teacher education. It is because of the importance that TAFE attaches to the partnership with advanced education in shaping TAFE teacher education in this State that the Department has recently used its good offices with the New South Wales Higher Education Board to obtain additional resources for TAFE teacher education programs.

The partnership between TAFE and advanced education institutions in TAFE teacher education is the mirror image of the partnership between industry and TAFE that underpins the relevance and timeliness of TAFE's own educational program. I spend a great deal of my time listening to industry expressing its views on the implications for TAFE of some of the dramatic changes currently occurring in the workforce. I would like to reverse that process and, as Director-General of Australia's largest TAFE Authority, talk about some of the major changes in TAFE and in industry that are currently effecting the nature of TAFE teachers' work.

The TAFE system has changed substantially since 1981, when I became Director-General. One of the most important of these changes has been the adoption early in 1985 of a uniform national nomenclature for TAFE awards, and of a system of national registration of TAFE awards. These developments have a number of significant consequences. They have given TAFE the right to offer, for the first time, courses at the Associate Diploma level in our own right, rather than under contract to the advanced education sector. They also return to us the right

- a right lost in the early 1970's to the advanced education sector - to offer courses at the Diploma level. In an associated development we have, in New South Wales, completely restructured our machinery for course development and course accreditation, and regrouped TAFE's 25 Teaching Schools into four faculties.

These changes have been introduced in order to ensure that proposals for new and revised major courses are subjected to rigorous external scrutiny by industry, by the community and by the higher education sector. They have also been designed to ensure that co-operation between related Teaching Schools in the development and delivery of courses is far closer than has hitherto been the case.

Linked to this there has, over the last two years, been an increasing stress upon the need to develop linkages between courses at different levels within the same School, between courses in different Schools, and between TAFE courses and higher education courses, so that students can move from one to the other with a minimum repetition of overlapping content, in order to advance their education and employment prospects. An excellent example of this is the articulated sequence of TAFE and NSW Institute of Technology courses in horticulture. This allows a student to move from trade to certificate to associate diploma courses in TAFE, and then to progress to a degree in urban horticulture at the New South Wales Institute of Technology.

During the mid 1970s and early 1980s growth and expansion were the catchcries of TAFE. In recent years we have entered a period of lower growth, with enrolments between 1984 and 1986 simply keeping pace with population growth rather than fuelling an increase in our overall participation rate. This period of consolidation gives us an opportunity to concentrate upon improving the quality of TAFE, and this drive towards quality improvement will be our major goal in the foreseeable future.

The new Diploma of Teaching program is one indication of this priority. A related development was the introduction in 1985 of a new and greatly improved TAFE teacher assessment scheme.

A strengthening of the capacity of colleges to respond to local industry and community needs is a central element in our quality improvement program. In recent years we have significantly increased the number of college-based support staff such as curriculum consultants, educational media personnel, and access co-ordinators. Allied to this increased capacity of colleges to service local needs has been improved delegation to Principals for the approval of new courses to meet local labour market needs.

The teaching environment has not only been changed by our own internal reforms. Changes currently occurring in industry are at present creating major challenges for TAFE. It is too easy to see these changes simply in terms of technological change. Whilst it could be argued with some justification that the rate of technological innovation is greater now than, say, twenty years ago, coping with new forms of technology has been a concern for providers of vocational education since the typewriter replaced the steel-nibbed pen.

What is occurring at the moment is a dramatic new awareness in industry of the way in which new technology affects the organisation of work and the traditional boundaries between skill categories.

On both sides of industry - employers and unions - there is an increased willingness to question traditional divisions between trade categories, and to question artificial distinctions between job categories of operators, trades workers and technicians. The flexibility which our financial markets now exhibit is beginning to extend to the market for skills; concepts such as multi-skilling are increasingly intruding into discussions of training methods and training structures. Allied to this, many sectors of industry and government are beginning to show an awareness of the need to concentrate vocational skill development effort not only upon new entrants to the labour market, but also upon existing workers. For this reason skill upgrading programs have been deliberately incorporated into recent restructuring plans for the heavy engineering and textiles, clothing and footwear industries.

A further development of major importance for TAFE is the pace of change in information and communications technologies. These offer great potential to affect education. At the moment serious investigation is underway within NSW TAFE of the possibilities created by computer aided learning - including simulation techniques - and by satellite technology to improve the effectiveness and efficiency of the delivery of our educational programs. These investigations co-exist with technological developments in areas such as videotext, teleconferencing, and radio transmission which all have the potential significantly to affect the process of teaching and learning. I am determined that TAFE should take full advantage of the potential that developments in communications and information technology offer for us to improve the quality and efficiency of our programs.

Hence TAFE teachers will not be able to assume that the educational skills developed in their initial teacher education program will be adequate for their entire career in TAFE. They will need to learn to use new techniques, and to use many existing techniques in different ways. They will have to become accustomed to a greater involvement in local curriculum

development, and become used to any of their efforts in State-wide curriculum development being subjected to a more testing external scrutiny than has been the case in the past.

Although TAFE teachers must demonstrate flexibility in how they teach, it is even more important that they are exceptionally flexible in their attitudes to what they teach. A multi-skilled workforce cannot exist alongside mono-skilled TAFE teachers. There is little point in preserving out-dated and elitist attitudes towards the teaching of trade skills if technological change has increased the skills of production process workers, and removed the distinction between production and maintenance tasks. There is little virtue in maintaining artificial distinctions between trade and technician level courses if industry is demanding a hybrid worker who can combine the skills of both.

Teachers will also need to be very flexible in their attitudes towards where they teach and when they teach. There is an increasing pressure upon TAFE to deliver programs at times and in locations that are more suited to the needs of industry than are the traditional teaching week, the traditional teaching year, or th TAFE campus. I am determined that TAFE will be flexible enough to respond to these needs, just as it has responded flexibly to community needs in its Outreach program. This was one of my major reasons for announcing in January this year the establishment of a mechanism to re-negotiate the TAFE teachers' award in New South Wales.

Most importantly, staff will need to become convinced of the need continually to broaden, update and upgrade their technical skills, for ultimately it is the technical competence of our teachers that determines the quality of TAFE's efforts, and the capacity of its programs genuinely to meet community and industry needs.

In its 1986 report on Future Directions for Manufacturing Industry the Australian Manufacturing Council argued that Australian industry must base its future development in large part upon skill-intensive and technology-intensive activities. A low wage, labour-intensive approach to manufacturing was not regarded as a desirable option for the country. The Council argued that this requires an education and training framework geared towards increasing industrial skills, providing for skills upgrading, and the provision of transferable and recognised qualifications in retraining programs. This will require enhancement of TAFE trades skills during the working lifetime of every teacher.

The need to invest in the upgrading of TAFE teachers' technical skills is, however not only a responsibility for this Department. It is a responsibility that all teachers must share. We can make available activities such as return to industry, opportunities for overseas experience and staff development, but these are supplementary. If TAFE teachers wish to be regarded as genuinely professional workers, they must accept that the responsibility for their own professional skills is fundamentally theirs.

I would not, however, wish totally to exclude the advanced education sector from these challenges. At least in its TAFE teacher education activities, it will need to exhibit a flexibility in future years that is as great as TAFE's, and in doing so it will need clearly to recognise some of the important changes that are occurring within TAFE. I look forward to a continuation of the co-operative partnership that has underpinned TAFE teacher education programs to date.

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7. THE CHANGING ROLE OF TAFE: ACCESS, ACCREDITATION, AWARDS AND ARTICULATION

INTRODUCTION

Tertiary education in Australia has undergone a number of dramatic changes over the past decade. One of the most significant of these changes has been the growth and development of TAFE.

Since 1974, enrolments in TAFE have doubled, the number of major TAFE institutions has increased and there has been a growth in the proportion of the population aged 15 or over participating in TAFE courses. These changes have resulted in TAFE in 1987 being quite a different organisation from that which existed in the mid 1970's. It is larger, more complex, geographically more diversified and more accessible. While still committed to its basic philosophy of vocationally relevant education it is more responsive to community needs and more closely tied to State and Commonwealth Government educational, social and labour market policies.

The last decade has seen a conscious attempt to respond to a much wider range of demands for education and training for industrially and commercially relevant skills; to increase access to TAFE on the part of the educationally disadvantaged; and to take TAFE's provision more widely into the community.

A conscious attempt has also been made to improve the quality of TAFE's educational programs and to submit TAFE courses to a greater degree of educational rigour through changes in accreditation processes. The introduction of a new system of TAFE awards has also strengthened the relationship between TAFE and higher education. This will also assist in the articulation of programs offered by TAFE and between TAFE and other educational institutions.

Before discussing these changes in more detail however, it is important to understand the special characteristics of TAFE and how it differs from other sectors of education.

CHARACTERISTICS OF TAFE

There are several significant features of TAFE which distinguish it from other sectors of education.

Perhaps the most notable feature is its size. Just under one million people are enrolled in TAFE courses throughout Australia. This compares with approximately 180 700 in universities and 209 000 in advanced education. There are also approximately 230 major TAFE institutions and over 750 associated centres or annexes. Thus TAFE is the most geographically accessible sector of tertiary education.

Another distinguishing feature of TAFE is its wide range of courses which provide education and training for employment at the operative, trade, paraprofessional and professional levels. In addition TAFE provides general education courses ranging from basic literacy and numeracy to matriculation courses. One of the major changes to TAFE which has taken place over the past decade has been the growth in provision of special programs for disadvantaged groups such as women, Aborigines, the disabled, people from non-English speaking backgrounds, the unemployed and the geographically isolated. TAFE courses range from a few hours in duration to three or four years. Awards for TAFE courses include certificate, advanced certificate, associate diploma and diploma courses.

An important characteristic of TAFE is the nature of its student population which ranges in age from 15 to over 65.

Also, TAFE students have widely varying educational backgrounds and life experiences. Some have only minimal secondary education, some have completed secondary school and some are graduates of either colleges of advanced education or universities. (See Table 1).

Level of Ed/Institution	University Per Cent	CAE Per Cent	TAFE Per Cent
Left School before Year 12	2.1	4.3	58.7
Completed Year 12	83.4	76.4	28.4
Partially Completed Degree/Qual.	6.7	9.4	5.1
Completed Degree Qual.	7.7	9.4	4.8
Not Stated	0.2	0.6	3.1
Total	100.0	100.0	100.0

TABLE 1 STUDENTS HIGHEST LEVELS OF EDUCATION BY SECTOR 1984

Source: Preliminary Results of the Commonwealth Department of Education's 1984 Survey of Tertiary Education Students.

The socio-economic background of TAFE students is also different from those in higher education institutions. The social composition of TAFE broadly reflects the composition of society in that TAFE draws roughly equally from all major socio-economic status (SES) groups, whereas universities and colleges of advanced education draw mainly from the higher and middle SES groups (see Table 2).

	Socio-economic Status Classification (a)			
	High (b)	Middle (c)	Low (d)	Total
Sector	%	%	%	%
University	20	9	7	12
Advanced Education	12	13	9	12
TAFE (e)	34	35	30	33
Total Tertiary	66	57	46	57
No Tertiary Education	34	43	54	43
TOTAL	100	100	100	100

TABLE 2 SOCIO-ECONOMIC STATUS AND PARTICIPATION IN TERTIARY EDUCATION BY SECTOR, 1980

(a) Percentages of each socio-economic status category who had undertaken tertiary study by age 19.

(b) Persons whose fathers were employed in the following occupational categories: professional, graziers and farmers, managerial, shop proprietors.

(c) Persons whose fathers were employed in the following occupational categories: clerical, armed services, craftsmen.

(d) Persons whose fathers were employed in the following occupational categories: shop assistants, operatives, drivers, service occupations, miners, farm workers, labourers.

(e) Includes some TAFE-type courses conducted by non-TAFE institutions (for example, private business colleges).

Source: Australian Council for Educational Research Study of Youth in Transition quoted in CTEC (1984), Report for 1985-87 Triennium, Volume 1, Part 1, AGPS, Canberra.

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The lower SES of TAFE students is reflected by the fact that TAFE has a higher proportion of students receiving government assistance, either in the form of education and training allowances or social security benefits, than the other sectors (see Table 3).

Source/Institution	University	CAE	TAFE
Education Training Schemes	38.4	49.6	54.0
Social Security	5.5	8.4	11.6
Employment	66.4	66.0	40.5
Repayable Loans	10.7	12.5	6.9
Non-repayable Loans*	67.8	61.2	58.1
Other	70.2	66.5	39.5
Non Income	2.1	1.1	3.6

* Refers to gifts usually provided by parents, relatives or spouses.

Note: Each separate figure in this table represents the percentage of the total population who receive income from each particular source. As students often have multiple sources of income the figures do not add up to 100% in each sector.

TABLE 3 SOURCES OF INCOME OF FULL-TIME STUDENTS BY SECTOR 1984.

Source: Commonwealth Department of Education: Preliminary Data from 1984 Survey of Tertiary Student Finances.

TAFE is also characterised by its close links with industry and its responsiveness to industry's needs. In New South Wales for example, industry is represented on TAFE's peak advisory bodies such as the NSW Council of TAFE, District Councils and College Committees and in the accreditation process through membership of the Board of TAFE studies and the Academic Committees. NSW TAFE has also established a system of School Advisory Committees which allow industry and the broader community to advise not simply on a single course but on the nature and structure of a Teaching School's educational programs and on the implications of technological, structural and legislative changes likely to take place in the future. Further formal links occur through TAFE's representation on Industry Training Committees, the Apprenticeship Council and the Commerce and Industry Training Council.

Finally, TAFE more than any other sector of education is used by both State and Commonwealth Governments as a vehicle for implementing social and economic policy objectives.

ACCESS

The Commonwealth Tertiary Education Commission (1984, p.63) has stated that all three sectors of tertiary education have important roles to play in a comprehensive attack on educational disadvantage. However, as the sector which is now most open, in terms of access, and most widespread, CTEC see TAFE as the main vehicle for promoting equity programs.

TAFE's success in providing access is shown in the remarkable growth in enrolments of external studies students over the past decade which reflects increasing access to TAFE on the part of the geographically and socially isolated. The growth in female enrolments from 40% to nearly 50% of total enrolments reflects a number of factors including conscious attempts to provide courses for women that are of an appropriate nature and offered in an appropriate mode. There have also been growing enrolment numbers in courses, mainly with a tradition of substantial female enrolments, in areas allied to the tertiary sector of the economy. Growing participation by those under the age of 17 in large part reflects an increased TAFE involvement with secondary schools and an increased provision of courses for the young unemployed.

At a time when the economy is restructuring towards a higher skills base with a higher proportion of tertiary sector employment, programs such as re-entry courses for adult women, basic education for the semi-literate and English courses for migrants serve a fundamental economic purpose. They increase the skills and educational levels of the community as a whole and enable entry to the labour market by those sections of the community previously deemed to be ineligible.

A strong public sector role in the development of vocational skills is important in promoting social equity as it promotes consistency of standards and gives a broad cross-section of the community access to skills and qualifications. This allows employers access to a wider pool of talent. Publicly established credentials promote labour market adjustment and flexibility in that wide recognition of credentials allows labour to be geographically mobile.

ACCREDITATION AND AWARDS

It is in the area of course accreditation and awards that significant change has occurred in TAFE over the past five years. In looking back at the TAFE system that existed in the mid 1970's, when TAFE was on the threshold of its period of

great expansion, the system offered a wide range of courses, each of which was classified into a relatively crude system involving six streams. This classification gave little indication of the purpose or intent of the courses included in each stream. Courses offered by individual State TAFE systems led to awards which varied from the awards for similar courses offered by other State TAFE systems. Similarly, the awards for TAFE courses were often quite different from courses of similar content, level and purpose offered by the advanced education sector. Having gained a TAFE qualification many students are required to repeat work done in TAFE if they wish to gain a higher qualification from a university or a college of advanced education. This repetition is often unnecessary and represents a waste of resources as well as student time and effort.

The establishment of the Australian Council on Tertiary Awards (ACTA) in 1985 was a historically important decision. I have already discussed its significance in terms of articulation and accreditation in my paper TAFE and Higher Education (see p.77).

ARTICULATION

TAFE in Australia has a strong commitment to the concept of articulation of its programs, both within TAFE and between TAFE and other sectors of education. This commitment is demonstrated by the wide variety of linkages between sectors which have already been initiated by TAFE. TAFE believes that the main objective of articulating educational programs should be to establish simplified education career paths for students involving minimum duplication of study and maximum credit and recognition for previous studies when they seek to move to a new program after completion of another.

There are several important reasons for supporting the articulation of educational programs. As mentioned previously, articulation can assist in overcoming social and economic inequities. OECD (1985, p.72) has shown in Australia, as in virtually every other Western country, young people from low income families and those whose parents have only limited education, are under-represented in higher education. It is therefore important, that opportunities be provided for people from low income families who commence their post-secondary education within TAFE so that they can progress to higher education if they have the motivation and ability to undertake a higher level of education.

Articulation of programs is also an essential component of recurrent or lifelong education. Many people who commence their career at the skilled or paraprofessional levels have the ability, breadth of work experience and motivation to gain higher education qualifications and to be effective performers at the professional and senior management levels. Changes in employment structures and occupations resulting from

technological change and industry restructuring mean that there will be a requirement for employees to update, upgrade and diversify their skills. Thus educational institutions need to provide such workers with opportunities to build upon experience and TAFE qualifications in the pursuit of higher education qualifications.

As explained in my paper TAFE and Higher Education the needless repetition of academic work is detrimental to both students and the economy (see p.75-76). I have also discussed at length both in this paper and in TAFE in New South Wales, (see p.72), the recent changes in the relationship between TAFE and higher education institutions.

CONCLUSION

The changes in TAFE outlined in this paper have been possible because of the high priority given to funding TAFE by both state and commonwealth governments.

Currently TAFE is embarking on a period of change that will be equally as significant as that which occurred between the mid 1970's and the mid 1980's. The demands upon TAFE will continue to increase as a result of demographic change, increasing demands for post-secondary education, restructuring of industry and technological improvements which require higher levels of skills and knowledge. This situation is likely to be exacerbated by changes announced in the May Economic Statement such as the abolition of unemployment benefits for 16 and 17 year olds; reduction of recurrent grants for higher education institutions and restrictions in sole parents benefits with the promise of additional training places to be provided to assist with entry to the workforce. This combined with a reduction in funding for TAFE will mean that TAFE will need to show even greater flexibility and innovation than it has in the past.

Of particular concern however, is the redirection of funds from TAFE to the Commonwealth Department of Employment and Industrial Relations and the reduction of staffing to CTEC.

DEIR's record in providing funding for training is well recognised. DEIR lacks an appreciation of educational issues and emphasises short, narrow skill courses rather than the more substantial courses which provide a broad range of skills, a recognised credential and which give students educational and occupational mobility.

The policy directions being proposed by the Commonwealth jeopardise the TAFE sector's standing in education, the recent introduction of national registration of TAFE awards and national core curriculum development. They also affect

relationships between the sectors of education and hamper efforts to increase articulation of educational programs. Unless these policy directions are reversed, not only will they affect TAFE's ability to continue to provide relevant vocational education and training efficiently and effectively, but the whole area of tertiary education and the relationships between sectors will be distorted.

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8. YOUTH AND FUTURE PRINTING TRADE TECHNOLOGY

The printing industry in Australia has now been at the cutting edge of the revolution in information technology for well over a decade. In 1979 it was one of the first Australian industries to realise that the skill classifications of a previous era are not suited to a new technological reality. The need for an amalgamation of skill classifications, if Australian industry's productivity is to increase, is now being appreciated in other industry sectors.

Pressure upon the printing industry to develop education and training responses to new printing technologies did not cease with the restructuring of trade classifications in 1979. Because of the continuation of these pressures the School of Graphic Arts in New South Wales in 1984 set about clearly identifying its future needs, and developed a comprehensive five year plan to best meet them. This plan provides for the expenditure of roundly $500 000 per year for five years to equip the school to meet the demands of the printing industry. Updating the equipment of the School of Graphic Arts has been one of the department's top priorities within its special equipment program. The total cost of providing printing training in TAFE is considerable. A recent national study has estimated it to be close to $6 million a year in New South Wales. Of this amount, equipment costs, including depreciation, represent 42%, compared to only 31% for teaching salaries. Planning for the school involves not only new equipment, but also major expenditure of over $3 million on refurbishing the school's building at Sydney Technical College. The total allocation of resources to meet technological changes and the consequent training needs of the printing industry has been considerable. It is the result of a long term plan by the department, in consultation with industry, to address the educational requirements of the printing industry. On completion of the five year plan the School of Graphic Arts will be adequately equipped and accommodated to meet TAFE's obligations to the printing industry at the trade, post-trade and non-trade levels.

Planning for the School of Graphic Arts also involves regular monitoring of the school's courses to make sure that they are up to date with current industry needs. The content of printing training is being influenced by technological change in two important ways. In the first place developments in information technology have caused the boundaries between the work of printers and other occupations to blur. The case of journalists and printers is by now a well know one. A more recently emerging

issue is the way in which desk-top publishing technology has blurred the previously clear distinction between the work of printers and the work of graphic designers.

In addition to these changes, technological change is creating pressures for higher levels of training at the top and bottom boundaries of the printer's traditional work. On the one hand there is great industry pressure for structured training to be introduced in areas such as carton manufacture and small offset printing, and for this training to occur under a traineeship arrangement rather than under an apprenticeship arrangement.

On the other hand the higher levels of technology now being used by the industry have created a demand for higher levels of courses - at advanced certificate and associate diploma level - which can be undertaken after initial trade training. This was one of the strongest findings of a study of future training needs in the printing industry recently conducted by the TAFE National Centre for Research and Development. For those just starting their career in the printing industry this is an exciting development, for it means that a trade course need no longer be in effect a terminal qualification. It can link into a series of higher level awards to provide an educational pathway to parallel career pathways in the industry.

The national study of training needs in the printing industry that I have just referred to also pointed out that there needs to be a greater effort by employers in the area of on-the-job training, and an improved co-ordination between what is learned on-the-job and what is learned at TAFE.

In conclusion, I would like to outline several important points that seem to have emerged from the impact of technological change on the printing industry. These are:

- the need for higher levels of training;
- the need for more training in non-trade areas;
- the need for better educational and employment linkages between different levels of training;
- the need for improved training on-the-job by employers; and
- the need for flexibility in decisions about which skills should be allocated to which job.

It is vital that we take into account these needs and their implications for future education and training.

9. INDUSTRY AND TAFE: A NEW RELATIONSHIP?

INTRODUCTION

TAFE in New South Wales has many strengths, and all of us have every reason to take pride in them. The most obvious of these strengths is that we have developed, since the mid 1970s, a system of vocational education that is accessible to a high proportion of the State's population. 1986 enrolments were equal to 9.4% of the State's population aged 15 and over, a more than doubling of the system's accessibility ten years earlier.

Within New South Wales, TAFE provides significantly greater access to post-school education for school leavers than is the case elsewhere in Australia. In 1985 35% of all those who had left school in New South Wales after Year 12 the previous year continued their education in TAFE. In all other States taken together, TAFE places accommodated only 13% of those who left Year 12 the previous year, in round terms only one third of the New South Wales proportion. In contrast to this, differences between States in Year 12 leavers' access to higher education are minimal. Each year some 53% of all Year 11 leavers, and some 55% of Year 10 leavers, enrol in a TAFE program in New South Wales.

The recently released ACTU/Trade Development Council report Australia Reconstructed places considerable stress upon the significance of recurrent education in contributing to an active labour market policy and to national economic development. It points to the fact that each year 2% of the workforce take part in courses conducted by the Swedish National Employment Training Board. In New South Wales 9.5% of the State's employed workforce were enrolled in TAFE in 1986, nearly five times the Swedish figure. Among workers aged 25 and older, 5.9% enrolled in a TAFE vocational course in 1986. By any international standard a commitment to learning of that magnitude by the employed workforce is a major achievement.

The reality of recurrent education within New South Wales is highlighted by recent trends in enrolment growth by age. Between 1981 and 1985 total TAFE enrolments grew by 29% in New South Wales. Among those in their thirties, however, enrolments grew by 53%, and among those in their forties they grew by 61%.

TAFE in New South Wales has made possible a depth of commitment to learning by school leavers, by adults and by the employed workforce that is of great significance in State industry development strategies.

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In addition to stressing the importance of a life long commitment to learning in advanced labour market policies, Australia Reconstructed stresses the significance of creating education and training opportunities for the disadvantaged. The rapidity with which TAFE has implemented State and Commonwealth programs such as YES, PEP, NOW, LATA, ATP and Aboriginal training initiatives is a measure of our contribution to the equity goals that are central to Australian State and Commonwealth labour market policies.

TAFE's increased accessibility and its contributions to national equity goals have been made possible by the skills of its staff: by their ability to innovate, to take risks, to be flexible, and by their sensitivity to State and Commonwealth policy objectives.

The pressures to which TAFE has responded so admirably since the mid 1970s to meet national participation and equity objectives in vocational education are at present being matched by pressures to contribute significantly to national industry restructuring goals. We are being required to contribute to these goals by meeting industry's skill development needs more flexibly and more responsively than has hitherto been the case. Hence I would like to outline the nature of these pressures, discuss some of their implications, and finally provide an opportunity for the discussion of the processes by which we will respond to them.

The pressures for us to develop new relationships with industry and to meet national industry restructuring objectives are coming from the highest levels. I am determined that we will respond effectively and promptly. It almost goes without saying that these matters should be accorded very high priority in the Department's operations.

PRESSURES FOR CHANGE

In the broadest sense pressure for TAFE to meet industry restructuring objectives is an inevitable consequence of the acceptance by many of those in influential positions that an increase in value added exports, as a prerequisite of economic recovery, requires a more highly skilled manufacturing workforce, and that this needs to go hand-in-hand with the adoption of more advanced technology and more flexible forms of work organisation. A crucial feature of this debate has been acceptance that a strategy of increased retention in school and increased technological outputs from higher education needs to be complemented by a strategy for improving skill development at the middle level, and for upgrading those skills used in the production process.

This climate of ideas has led to specific pressures upon TAFE from the State, from the Commonwealth government, and from industry itself. In particular, industry pressure for reformed training arrangements is coming from the trade union movement.

STATE PRESSURES FOR CHANGE

Shortly after assuming office the present Premier and Minister for State Development, the Hon. Barrie Unsworth, formed a State Development Council, one of whose first tasks was the preparation of a State Economic Development Strategy. The Strategy, which was released in June this year, examines the comparative advantages of the State, identifies industries that have potential for growth, and outlines a framework for helping these industries realise their potential. Subsequent to the release of the strategy document specific development strategies have been released for the tourism and telecommunications industries, and further specific industry development strategies can be expected.

Over and above its identification of growth industries, the strategy is important for TAFE because of the emphasis which it places upon gearing education and training more towards the needs of industry, and in particular for its stress upon the need for government authorities to create an environment that supports the rapid development of the private sector. Included as an initiative in the Economic Strategy document is an investigation of the feasibility of establishing industry - oriented skill centres in selected regions.

Flowing out of the government's commitment to an efficient public sector which can support the development of the private sector, the Premier announced in August this year a Review of the Structure of New South Wales Government Administration, to be conducted by Mr David Block, who had previously completed a similar review for the Commonwealth government. The review is to examine how the structure and operation of the machinery of government in the State can best serve the objectives of State development and private sector growth.

Clearly we are operating in a climate in which we are expected to contribute to the State's industry development objectives, and to assist the growth of the private sector. This is matched by a climate in which State government authorities are expected to account in more detail for their performance in meeting government objectives, and in which their capacity to do so has been greatly enhanced by developments in information technology and data processing.

COMMONWEALTH PRESSURES FOR CHANGE

Until quite recently Commonwealth industry policies to all intents and purposes ignored the fact that people worked in industries. The LATA program, introduced in 1982-83 as a component of assistance to the steel industry, recognised the need to include a retraining component, but only for those made redundant by structural and technological change.

More recent Commonwealth policy, as expressed in the heavy engineering and the textiles, clothing and footwear industry plans, recognises that upgrading the skills of existing workers is an essential component of industry restructuring. To qualify for Commonwealth assistance firms need to negotiate agreements with their workforce which cover matters such as the introduction of new technology, changed management practices, new forms of work organisation, and comprehensive training packages.

The Commonwealth's concern to bring its economic policies and its education and training objectives more closely together lies behind the decision, after the July 11 Federal election, to create a new Department of Employment, Education and Training. The importance of TAFE in this process means that we now have a Commonwealth Minister who, far more than any other in recent memory, has made TAFE a high priority for the portfolio. Like the State government the Commonwealth is concerned that the education system be more responsive to its industry policies. It is also concerned to rectify the low level of private investment in skills development which, together with low investment in research and development, characterises Australian industry.

The 1987-88 Commonwealth budget has introduced a number of important changes to TAFE funding designed to implement these priorities. The previous fees reimbursement and designated grants have been abolished in favour or general recurrent grants. These are not allocated to specific purposes, giving the State greater discretion in how Commonwealth funds can be spent, but are to be subject to resource agreements under which the State is to be asked to agree to pursue Commonwealth equity, economic efficiency and productivity improvement objectives in TAFE. Greater discretion in the expenditure of these combined recurrent funds is linked to a reduction in their overall level, most of which was announced in the May economic statement. However this reduction is balanced by an increase in funds allocated to specific labour market programs, and most of these funds can be expected to flow to TAFE. Whilst there is an overall increase in the number of training places for the unemployed, funds for training associated with restructuring and adjustment plans in the heavy engineering, coal, and textiles, clothing and footwear industries have also been increased significantly. In overall terms there will be no reduction in recurrent funds, and there could well be an increase.

These changes to the recurrent program are designed to bring the Commonwealth's TAFE funding policies more closely in line with its economic priorities. They are complemented by a series of changes designed to increase industry's contribution to skill development and to bring industry and TAFE closer together. The funding policies, amongst other things, have the following features:

- In the recurrent program resource agreements are contingent upon TAFE authorities having the capacity to retain revenues from fee-for-service activities.

- In 1988 $3 million in equipment grants will be reserved for priority proposals involving industry contributions towards the purchase of TAFE equipment. In allocating the balance of funds budget papers indicated that account will be taken of responsiveness to industry requests for equipment upgrading.

- Guidelines for new capital projects will allocate priority to proposals that are supported by industry and that involve an industry contribution.

Quite clearly the Commonwealth is using TAFE as a lever to extract investment in skills development from industry. If TAFE funds are linked to an industry commitment, TAFE staff will have a significant incentive to persuade industry to contribute.

In another significant move to encourage industry to invest in training the recent Commonwealth budget increased Innovate Training Projects funds available to Industry Training Committees from $4.3 million to $9.9 million. These funds are designed to stimulate industry skill centres under guidelines which require an industry contribution, and in areas where TAFE capacity is limited or at a premium, or where the training provided falls outside the traditional province of TAFE. In particular, assistance will go to industries prepared to reform their training arrangements and to introduce revised career structures linked to training.

INDUSTRY PRESSURES FOR CHANGE

Whilst government pressure for change should not be discounted, the underlying pressure for change is coming from industry itself, and the trade union movement is at the forefront of these pressures. Some of these pressures are of a fairly general nature, and some are only on the horizon as yet. Whilst the report Australia Reconstructed has received much publicity, it basically sets the broad directions for change, and helps to establish a climate in which increased training effort, particularly within industry, and changes to technology, work organisation and skill development, are seen as pre-requisites of economic growth.

In the plastics industry, in the electrical and electronics trades, in the textile clothing and footwear industries and in motor vehicle repair, major national projects on skill development are either in progress or soon to be commenced. New wage fixation guidelines that link second tier wage increases to productivity improvements, including changes to skill demarcations and work practices, can be expected to result in greater industry training effort, much of it within the firm.

However the development which has the greatest significance for TAFE is the recent agreement between the Metal Trades Industry Association and the metal trades group of unions to fundamentally restructure the metal industry award. This agreement is of such importance that I intend to outline it in some detail before discussing its implications. The proposal is important because of its wide-ranging nature, because of the key role played by metal workers in all sectors of manufacturing, and because of the central part that the metal industry award has historically played in Australia's industrial relations system.

A central feature of the proposed restructuring is that the present 300 or so award classifications will be collapsed into nine broad banded grades, with each grade including occupations which require similar skill levels. Within each grade, employees will undertake a range of duties, rather than limit their skill development to present demarcations. The breaking down of demarcations and the broad banding of classifications is seen as a precondition for the development of a multi-skilled metal industry workforce.

The second central feature of the proposed restructuring is that the nine skill levels will be arranged in a career ladder, with progression from grade to grade, and consequently employees' wage levels, depending upon the acquisition of specified skills.

This career structure will enable operative level workers to enter a training structure from which they can progress to the base trade level and upwards, and it will create advanced trade categories to which trade workers can progress upon the completion of appropriate training. It will also create links between advanced trade categories and technician categories.

At the operative level it is proposed that traineeships will replace junior rates for semi-skilled employees, and it is proposed that traineeships should be integrated with apprenticeship through common modules which provide the opportunity to advance from one level to the other. Articulated sequences of education and training are also proposed between trade, advanced trade and technician levels so that education and training structures and award structures parallel one another. The award restructuring will remove age restrictions on entry to trade training, and will broaden the base of skills acquired by apprentices.

Implementation of an award structure which links operative to paraprofessional skills through a career ladder, which introduces multi-skilling and which ties wage increases to skill acquisition will not occur overnight. Many complex and difficult problems remain to be solved, and current indications are that implementation of the revised award will occur over at least a two year period. In the meantime a number of pilot projects linking wage levels to skill acquisition are being implemented within particular firms. The first of these within New South Wales is being introduced at Hexham Engineering in Newcastle, with others known to be under negotiation. TAFE will play an active and constructive part in implementing these pilot projects.

The restructuring of the metal industry award has a number of important implications both for TAFE and for the education and training system as a whole. In the first place it will create an increased demand for skills training, in particular at the operator and advanced trade levels. It will increase demand for on-the-job training, and for training within the firm. This in turn is likely to stimulate a more varied and diverse system of training providers as manufacturing establishments develop training systems for their own workers, and as private training companies offer educational services on the market.

I would not expect the emphasis upon multi-skilling in the proposed award restructuring to be a major problem for TAFE. We have many examples of co-operation between Teaching Schools in course development and course delivery, and for many years we have been offering multi-strand trade based pre-employment courses that transcend existing trade boundaries. The Hexham pilot scheme will involve co-operative effort between the Schools of Engineering Trades, Applied Electricity, Business and Administrative Studies and Office Administration. If apprentice fitters are now required to learn welding, or to acquire electrical skills, there is, in reality, very little change from TAFE's existing tradition of adapting its course structure to technological change, to new licencing requirements, and to changes in occupational definitions. Our capacity to cope with these requirements has been increased by recent emphasis upon vertical and horizontal articulation in course development, and by creation of the faculty structure.

There are, however, a number of other TAFE traditions that will need to be reconsidered if we are to assist these developments constructively and positively.

Firms that are attempting to implement improved training arrangements will need assistance, and in very many instances TAFE Colleges will be the only major source of the necessary skills and resources. The future development of manufacturing industry is far too important an objective to be impeded by an

adherence to traditions and practices whose current relevance we have not taken the trouble to rethink.

A clear distinction between public responsibility for developing broad based transferable skills and private responsibility for enterprise-specific and equipment-specific skills needs to be retained. However the crucial distinction is not between who provides the training, but between who pays for it. Where new industrial arrangements require employees to gain skills, and where the necessary training is to be provided on-the-job and to be specific to the firm, TAFE can assist in raising industry's productivity, but without assuming the cost. In practice this means that we should assist the development and implementation of enterprise training programs and on-the-job training plans, but do so under fee-for-service arrangements in which the full cost is met by industry.

Much of the training that occurs under such arrangements will be at the operator level, which has long been neglected in Australian training arrangements. In the longer term formal traineeship arrangements are likely to be introduced at this level, but this will not be so in the case of initial pilot schemes. Whether traineeships will become a mandatory entry point for certain operator level classifications is not yet clear. It is, however, quite clear that many of our trade based Teaching Schools will need to reconsider their responsibilities to foster and provide instruction in operator level skills.

TAFE staff who are involved in these initiatives will need to possess skills which go beyond the delivery of existing courses within TAFE classrooms and workshops. These skills will need to include: consulting with and advising firms on the development of training plans; the development of courses that meet local industry requirements; the development of skill assessment packages to be used to determine whether employees possess the skills required to be paid certain wage rates; and delivering train-the-trainer programs for company staff.

At this stage it seems clear that considerable flexibility will be required in the way in which these services are provided. Firms might require training to be delivered on a year-round basis. In other cases industry might require down time to be used for training purposes. In many instances existing courses will be delivered in TAFE Colleges, but in other instances firms will request that their own premises be used where appropriate.

Stemming from this a number of complex issues will be raised about the recognition of training provided for particular enterprises, and about the recognition of on-the-job skills. It has been made clear in the case of the Hexham pilot scheme, as well as in other contexts, that where training is provided to upgrade skills to levels specified in industrial agreements,

credit for studies and articulation into mainstream courses will be sought. This will be necessary to preserve a parallel between career ladders within industrial awards and educational structures. Stemming from this we will need to consider issues such as the recognition of skills developed on-the-job for purposes of entry and advanced standing, and accreditation and articulation of locally developed courses. To meet the requirements of industrial agreements, appropriate accreditation and articulation will need to be provided within tight time frameworks. Looking further ahead, we will need to consider questions of accreditation and articulation where training is provided by employers themselves, or where it is provided by non-TAFE providers.

It will take a period of time for the final shape of the revised system to become apparent. In particular the boundary between what is enterprise-specific training and what is State-wide in its relevance will take time to become clear, and this will influence not only questions of accreditation and articulation, but also the matter of responsibility for meeting the costs. In the recent Commonwealth budget an amount of $1.5 million was set aside for a national three year project to further the proposal and to resolve the issues which it raises for education and training systems.

For those of us who have long been critical of gaps in Australia's training arrangements, the proposal to restructure the metal industry award is a significant and positive breakthrough. At the beginning of this year I expressed my strong support for the proposal in writing to the Metal Trades Industry Association, and more recently I have expressed it in person both to the Association and to the Amalgamated Metal Workers' Union. If the restructured award stimulates employer investment in training and gives employees a financial incentive to increase their skills, it will provide major stimulus to the productivity of manufacturing industry.

AN OVERVIEW

I would like now to bring together in summary form the main forces that are leading us into an environment in which our relationship with industry will need to change.

- The State government expects us to demonstrate how we are assisting industry development, and how we can foster private sector growth.

- In future our Commonwealth funding will be linked to our capacity to attract industry support for our activities, and to attract an industry contribution in-cash or in kind. In addition we will be expected to be able to provide training to industry on a fee-for-service basis in an entrepreneurial manner.

- The State government has committed itself to investigate the feasibility of industry training centres and the Commonwealth is providing funds to stimulate their development.

- The growth of on-the-job training, in the first instance within the metals industry, will require TAFE's assistance, and will require us to resolve a number of complex issues in the relationship between on-the-job and off-the-job learning, and in the relationship between publicly provided and privately provided learning.

- Both industrial relations developments and on-going technological change are blurring the boundaries between skills, and creating new demands for training at the operator and advanced trade levels.

These several developments have implications for our educational profile, for our external relationships, for the institutional and legislative framework within which we operate, for our resource allocation processes, for the types of skills expected of our staff, and implications for how these skills are utilised. They affect the way in which we set our priorities at every level of the organisation. These developments will require us to do some things that are new to us. They will require us to be more flexible and more entrepreneurial in many of the things that we do already. And they will certainly require us publicly to demonstrate in a far more visible way how well we are meeting the needs of industry.

The importance of these issues has led the Minister to establish a high level working group, to be chaired by Mr Bob Debus, the Assistant Minister for Education, to recommend specific steps that need to be taken. In the first instance the group will explore interaction with other government agencies, the need for better linkages between TAFE and specific industry plans, and ways in which unions can contribute more directly to planning. The latter is of particular importance in a climate in which training arrangements are being re-negotiated in a tripartite framework. Too frequently we have tended to assume that industry is equated only with employers.

Within TAFE I expect issues stemming from the need for a more visible and flexible response to industry's skill development needs to be carefully considered by all areas of the organisation: Colleges, Schools, and Head Office. The responsibility for meeting these needs is a shared one, and not merely one that can be imposed centrally. An example of possible responses to the new demands being placed upon us is the recent joint request by the Directors of Planning and Studies that Academic Committees report to the Board of TAFE Studies on ways in which the education and training needs of growth industries

identified in the State Economic Development Strategy can be met. Whilst major responsibility for industry liaison within the Department rests with the Teaching Schools, it is likely that the new environment will require steps to strengthen this role.

There are two points that I would like to make in conclusion. Whilst it might have implications for some of our activities, any increased emphasis upon responsiveness and flexibility in meeting industry's skill development needs contains no implication that we have a reduced obligation to meet the needs of the disadvantaged. A quick glance at the TAFE initiatives announced by the government in the 1987-88 State budget would make that clear. However it does lead to the conclusion that access to TAFE by the disadvantaged is not a goal in itself. The point of access is ultimately to provide the disadvantaged with skills and qualifications that are of value in the labour market. This means that programs developed for the disadvantaged need to take account of the needs of industry, as well as the particular circumstances of program participants.

Finally I would like to say something about TAFE's entrepreneurial role and about the place of fee-for-service activities. In its Economic Development Strategy the State government has made it clear that it expects government authorities to assist in fostering a climate that stimulates development of the private sector. Whilst the primary objective of the private sector is to be profitable, the principal obligation of the public sector is to provide services. Both have an obligation to do so efficiently.

No doubt many of TAFE's activities are potentially capable of making a profit. We should note that the State government imposes no obligation upon us to place profit making as a goal of our public education activities. The principal goal of fee-for-service activities is not to generate revenue. Nor is it to engage in competition with services readily available within the private sector. The point of fee-for-service activities is to share the cost of providing education and training services that are not readily available within the private sector, but whose benefit primarily accrues to individual firms rather than to the public as a whole. By combining our public courses with this attitude towards fee-for-service activities we can, I believe, best meet the objectives set out in the State's Economic Development Strategy. In no way should this be interpreted as signalling the introduction of fees for TAFE's mainstream educational programs.

To be entrepreneurial means to take risks, to innovate, and to seek new opportunities. It is in this spirit that I hope that all of us will face the challenges of better meeting industry's skill development needs.

With these points in mind, I am able to give advance notice of the Minister's approval to establish an Industry Liaison Unit within TAFE as a means for TAFE to respond promptly to the immediate training needs of industry. This demonstrates the Minister's commitment to the matters which I have raised and also my support for the Minister's initiative in these matters.

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10. SETTING THE SCENE

Tertiary education in Australia is currently under considerable pressure to change and adapt. Yet moves in the direction of change co-exist with a need to ensure that a number of important educational continuities are not lost. This tension between change and continuity affects all areas of tertiary education, but nowhere more than its bricks and mortar. A number of other conflicting pressures which stem from the tension between change and continuity are particularly pertinent for those charged with stewardship of tertiary education's physical estate: tensions between flexibility and specificity, between quality and quantity, and between independence and accountability are among these.

I would like to outline some of the more important elements in the current climate of debate on tertiary education in Australia, and then look more specifically at a number of issues that affect the planning, design, construction and management of buildings in tertiary education.

The most obvious feature of the current debate on tertiary education is that higher education is under attack. It is being attacked for not adequately responding to the labour market and to economic needs; for not providing sufficient places for young people; for not producing enough of the right sort of graduates; and above all for not meeting standards of participation and output supposedly set by some of our Organisation for Economic Co-operation and Development (OECD) competitors.

It seems almost a daily occurrence for a Commonwealth Minister to claim that we languish towards the bottom of the league of OECD countries in higher education, or that our output of key technological personnel is woeful by OECD standards. Let me balance the debate by pointing out some aspects of Australian higher education that some of its critics appear to have overlooked.

- As a percentage of Gross Domestic Product (GDP), Australian public expenditure on higher education is the fourth highest in the OECD. On 1983 figures, which are the most recent ones available, we spend 1.08% of GDP on higher education, exceeded only by the Netherlands, the USA and the UK, and substantially higher than Japan's 0.37%.

- Whilst our output of graduate engineers is below that of countries such as Japan, it is on a par with the OECD average, and not "woeful". Our 1984 output of 23 graduate

engineers per 100 000 was comparable to that of countries such as France and Finland, and substantially ahead of other OECD countries such as Austria, Switzerland and the Netherlands.

- The rate at which Australia graduates scientists is among the highest in the OECD. In 1984 we produced 50 science graduates per 100 000 population as against an OECD average of 30. Our combined output of scientists and engineers is well above the average for OECD.

- Whilst the proportion of all 17-21 year olds in full-time higher education programs is low by OECD standards, this index is not the most appropriate means of comparing our participation to other countries, as only some 38% of all our higher education students are 17-21 year olds in full-time programs.

Two major strengths of higher education in Australia, compared to other countries, are its ability to meet the needs of adults, and the flexibility evidenced by the high proportion of students in part-time and external courses.

If you look not at full-time youth participation, but at total participation, Australia compares very well indeed to other countries. In fact there are more higher education students per 100 000 population in Australia than in Japan, with whom we are often adversely compared: in 1984 2 313 compared to 2 006 in Japan. The only OECD countries that are significantly ahead of Australia on this index are the USA and Canada, but as Keith Windschuttle has recently pointed out in The Australian, much of what we locate in TAFE in Australia is found in higher education in those countries.

Many of the current pressures upon tertiary education in Australia stem from changes in its funding base. As a proportion of all Commonwealth expenditure, higher education expenditure in Australia fell from 4.6% in 1976-77 to 3.0% in 1986-87. This has coincided with a growth of some 25% in the equivalent full-time student load between 1975 and 1985, and a growth, particularly in advanced education, of the proportion of students in medium and high cost programs. A relative decline in the overall level of funds has coincided with a shift in their composition. Capital funds declined from $396 million (at December 1985 cost levels) in 1975 to $73 million in 1985. In the period of 1973-1975 capital grants for higher education averaged $21 600 per EFTS (again at 1985 cost levels), but has declined to $10 000, or less than half this level by 1985. Public capital expenditure on higher education in Australia fell by an annual average rate of 9.8% between 1976 and 1983, which was more than twice the average decline in the OECD. These changes in funding have required higher education to do more with less, and have limited its capacity to cope with new demands by expanding its capital stock.

Coinciding with these changes in higher education there has been a changed national priority for TAFE. Commonwealth grants for TAFE grew from 6.4% of the total Commonwealth outlays on tertiary education in 1975 to 12.2% in 1987. All State governments, which provide the bulk of TAFE's funds, increased their relative expenditure on TAFE in the period. In the case of New South Wales, expenditure on TAFE grew from 7.9% of outlays on education in 1977-78 to 11.0% in 1983-84. In the same period the comparable growth in Victoria was from 3.4% to 8.4%. This growth in funding has not, however, prevented demand for TAFE places from substantially exceeding the capacity of TAFE.

Changes to the funding base of tertiary education have coincided with a significant blurring of the boundaries between the education sectors. There has been a progressive erosion of the distinction between colleges of advanced education and universities, with advanced education institutes in both Western Australia and New South Wales now having been declared universities, and with the Commonwealth government recently having opened up research funds for competitive bidding by institutions from both sectors. At the same time the educational profiles of TAFE and advanced education have been growing closer together. This is the result of a growing influx of year 12 leavers into TAFE, and because TAFE colleges, following the Australian Education Council's decision of early 1985, are now able to offer associate diploma and diploma level courses in their own right. These trends are reflected in recent changes to, or at the least inquiries into, the organisation and administration of tertiary education in every mainland State.

A current feature of tertiary education in Australia is pressure for its funding base to diversify. This is both because of government budgetary constraints and because of a desire, particularly by the Commonwealth, to see industry and education more closely linked.

We have seen a private university established in Queensland, with encouragement for more such institutions likely, and in New South Wales the Kyoto Institute of Science and Technology has announced, with government support, the establishment of a private TAFE college. This College will be an addition to the already significant number of privately run vocational training colleges in Australia. For at least the last two years all sectors have been under pressure to raise additional funds by marketing their higher education in Victoria, the Northern Territory and Western Australia. The recent Commonwealth budget has seen a selective relaxation of the prohibition on tuition fees. There is significant Commonwealth pressure upon TAFE to seek capital and equipment support from the private sector, and to tailor its capital program more directly to specific industry needs.

All of these matters raise some significant issues for the planning, design, construction and management of public educational facilities.

One of the most obvious is the question of the extent to which buildings, their availability and their suitability - act as an intermediary between the articulation of policies and their realisation. Stemming from this are questions of the extent to which questions of physical capacity need to be incorporated into the tertiary planning process in a more coherent fashion than has recently been the case. Two examples will suffice to demonstrate what I have in mind. In the case of traineeships, a major Commonwealth initiative for TAFE was announced without any apparent consideration of whether physical capacity and appropriate equipment was available to mount the initiative in key areas such as business studies, hospitality and computing. The recent Commonwealth decision to allow colleges of advanced education to tender for research funds might do little to break down barriers between the two higher education sectors if colleges' physical resources have been based upon the assumption that their role is to teach rather than to do research. Many colleges' capacity to justify their access to scarce research funds could well be limited by their lack of appropriate research facilities - both buildings and specialised equipment.

My own suspicion is that it is people, rather than buildings, which act as the greater impediment to change. It is often too easy to fall back upon physical limitations as an excuse for inertia, or to design facilities which, by their inability to be adapted to new purposes, inhibit change. There are a number of specific matters concerning buildings that require consideration and response. These include new legislative requirements for occupational health and safety, and the need to conserve and preserve tertiary education buildings which are part of the national estate. I think that too much can be made of these specific issues, as they are simply more recent examples of a perennial concern of tertiary education building managers. This is the need to adapt the physical skin of tertiary education to new educational demands, to new forms of technology in industry and in the teaching process, to a changing student body, to demographic change and to legislative change. None of us have ever been able to assume that our buildings are immutable and able to meet all foreseeable educational demands. All of us have had to assume, throughout our working lives, that resources are limited and that priorities must be set for their use.

To my mind the question of change is less important in the current climate than the issues of quality and accountability. I am less worried by pressures upon us to change, and by the need to decide priorities in allocating resources, than by the possibility that questions of quality in educational delivery might become submerged in the press to increase participation

and to economise, and by the possibility that questions of public accountability for public purposes might become lost in the press to diversify funding sources.

All industries require buildings that are appropriate to their purposes. However developing the intellectual, creative, emotional and social potential of human beings is not the same type of activity as building cars or selling socks. Students within public education need an educational environment which not only contains adequate classrooms, workshops and libraries, but which at the same time promotes the dignity, worth and joy of learning. They need an environment that allows for quiet contemplation when needed, that provides shelter from the elements at times other than during formal instruction, and that can meet basic needs such as those for food and child care. Similar requirements apply to staff who are required to promote educational values. One of my real concerns about the pressure to do more with less is that use of cheaply converted, hastily rented, or borrowed facilities will give students the message that learning is cheap, able to be improvised and disposable.

On the other hand new buildings are not always the best way to promote educational quality, to increase access or to meet new needs. How well are our existing buildings utilised, and how adequate are our formal measures of building capacity and building utilisation rates? Educational institutions are not defined by their buildings, but by their students and their courses. In all sectors of tertiary education the fastest growth rates over the last decade have occurred in external enrolments, and developments in communications and information technology are making it increasingly possible for many educational problems to be tackled without resort to the construction or modification of classroom spaces.

Increased flexibility in building usage can be incorporated at the planning and design stages so that modification becomes easier when new purposes and demands arise. But frequently, inflexibility results from institutional management practices rather than from buildings themselves. The territorial attachment of faculties, departments and sections to particular educational spaces is often a significant incentive to construct new buildings when more intensive use of existing facilities could be achieved simply by sharing. In my own Department the introduction of computing facilities to all colleges has been accompanied by a philosophy of declaring all computing areas as a common college resource, rather than the province of particular educational sections.

In a climate in which industry, rather than students, is regarded by some as the key client of education, there is a strong temptation to construct specific educational facilities that can be identified clearly with particular industry sectors.

Whatever advantages such arrangements might have, they also entail significant disadvantages. A large number of smaller, specialised facilities entails higher construction costs and higher on-going recurrent costs than a smaller number of larger multi-purpose educational facilities that can serve the needs of many industries, and within which resources can be shared and economies of scale achieved. There is also a temptation not to add important educational facilities such as canteens, libraries, study areas, and child care facilities if sites are small and specialised. Furthermore specialised and dedicated facilities entail a loss of flexibility in the way in which educational spaces can be used, and a consequent increase in costs. Thus the current push for a closer partnership between industry and education might result in greater difficulties in educational institutions achieving flexibility, speed of response, and economy in the use of resources.

Educational institutions are also posed with different questions on accountability when the source of funds, both capital and recurrent, becomes diversified. Whilst the American model of benefactors is a way of attracting funds, great care needs to be taken that these arrangements do not compromise either freedom to teach or freedom to investigate. It is also important to ensure that those providing funds for capital facilities are aware that broad educational purposes need to be met by institutions within the facilities whose operation is assisted by dedicated funding.

Despite this argument, I do not believe that educationalists are always the best judges of what sort of facilities they need. To counteract the tendency towards the grandiose, and to ensure that facilities are appropriate to the needs of consumers, there is a very strong case for student and industry involvement in the planning of new buildings. I would also advocate a strong industry involvement in the equipping and fitting out of those new or remodelled facilities that ultimately educate students for employment. The accountability and monitoring that this builds into the planning process needs to be complemented by greater use of post construction usage audits to improve the effectiveness of future planning.

While we have devoted a lot of research to pedagogy within education, too little has been devoted to ways of improving the planning, design, construction, remodelling and usage of educational buildings. Many large educational institutions lack things as basic as a complete and detailed inventory of all building spaces and educational equipment. If educational institutions promote the process of rational inquiry in their students, they should promote it within their own operations, including the planning and management of buildings.

Engineers are not generally known to draw their inspiration from philosophers and poets. However in his Elective Affinities, published in 1808, Goethe expressed a pragmatism in his view of buildings that all of us could take to heart.

> "Three things are to be looked to in a building: that it stand on the right spot; that it be securely founded; that it be successfully executed."

If we add to this the need for wise use, I believe we have a good formula for building development and management in Tertiary Education.

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GEOFF A. HODGSON

Geoff A. Hodgson has been the Deputy Secretary of the Northern Territory Department of TAFE since 1987.

Where Next was a speech night address delivered at Sadadeen Secondary College.

11. SADADEEN SECONDARY COLLEGE - SPEECH NIGHT ADDRESS

The title of this talk is "Where Next" and my specific audience are those Year 11 and 12 students who are about to leave the protective, sheltered environment of school and possibly, home. Before attempting to gaze into the fortune-teller's crystal ball and describe a possible future world for these students to conquer, I need to ask and partly answer a few personal questions to set the scene for deciding where they might be going.

The first question that senior students today should ask themselves is, "What have 11 or 12 years of school attendance done for me?" It really depends on people's expectations about the purpose and aims of education. Their teachers would hope that by now they are able to think critically, to cope with life beyond school, to have developed intellectual capacities and motor skills and to have acquired useful knowledge for occupational purposes. In addition teachers would hope that their students are ready to become citizens capable of contributing to the good of society.

Parents, on the other hand, would be quite pleased to note that their children are literate and numerate, with suitable training and accreditation for entry into a range of jobs. Employers tend to take a rather narrow view of the products of schooling, with expectations which are tightly locked into the needs of particular occupations. Surveys of employers across Australia have elicited requirements ranging from short haircuts and good manners to the ability to work independently without supervision.

Debate about the purposes of schooling will never end. Consumers of the educational product are never satisfied anyway and often criticise on the basis of what they think they remember during their own (obviously better) education. This is compounded by a great deal of ignorance about what happens in schools. Outcomes really should relate to coping with an uncertain future and students may care to match themselves against this checklist of qualities and skills possessed by the educated school leaver:

- open mindedness;
- broadly based knowledge of the world around us;
- eagerness to search for new and different perspectives on issues;

- persistence and endurance in completing tasks;
- competencies and skills in fulfilling manual, organisational and mental tasks;
- sensitivity to the aspirations and motivations of others;
- ability to speak another language;
- information handling skills;
- mathematical skills to cope with computerisation, a credit economy and a technological society;
- language skills capable of interpreting the enormous amount of information in our daily lives;
- the ability to rise above narrow bigoted prejudiced attitudes and to think through problems without bias.

A high score on this list makes a student a prime candidate for success as a citizen of the future.

However, surveys of senior secondary students around Australia have often revealed a disenchantment with a curriculum which is clearly not preparing young people for coping with a rapidly changing world.

Schools like Sadadeen are seeking to avoid such criticism by broadening options and designing courses for citizens of the 21st century. But the question still remains about the attitude of students to education - "are they tuned in - or turned off?" Do they identify with Shakespeare's description of a typical 16th century English student "The whining school-boy, with his satchel and shining morning face, creeping like snail, unwillingly to school" (As You Like It).

Students may be interested to know what happened to the N.T. Years 11 and 12 school leavers of 1986 who have been the subject of a recent Department of Education research project. One of the surprising results was the fact that:

- one quarter of intending leavers actually returned to school in 1987;
- another quarter entered the workforce directly; and
- one sixth of school leavers became apprentices (only 15% of whom were girls!), with most entering vehicle, building and electrical trades.

It is significant that an increasing number of apprentices are now drawn from Years 11 and 12 students, although Year 10 is the acceptable minimum level. Others entering the workforce favoured occupations such as clerical officers, tradespersons, salespersons and personal service tasks. Girls continued to enter traditional female jobs such as clerical, sales and service areas, thus pointing up our failure to break down entrenched attitudes about male and female roles in society.

About one third of school-leavers entered tertiary education, with almost one quarter of those attending institutions outside the territory, a trend which must be reversed. Most males tended to undertake science, engineering and technology courses while female students preferred arts, humanities, education and paramedical studies.

One disturbing fact emerging from studies of N.T. students is that 60% of Year 11 students had not discussed subject choices or career prospects with their teachers. In an environment of high youth employment, bewildering changes to society and the economy and the inability of parents to offer informed advice, schools must accept responsibility for providing personal careers and study guidance to their students.

Secondary students can expect to live until the middle of the 21st century given current life expectancy trends. By year 2000 they will be at career thresholds leading to a range of exciting (or frightening) possibilities. They will probably be living with a partner, playing the role of a parent and becoming conscious of their civic responsibilities. But above all, they will be living in a society which their grandparents might find strange and threatening.

Writers and academics have been describing our society as 'post-industrial'. Let's examine this name and its meaning. Pre-industrial society was concerned mainly with agriculture, handcrafts and village life where muscle power was an important pre-requisite for work. Then came the 'industrial society' with its machines, factories, new forms of energy such as steam, oil, electricity and the growth of large cities.

In a post-industrial society, agriculture and manufacture still exist, but are carried out by fewer and fewer people. Employment is moving to service industries - services to people and the provision and processing of information. Automation and technology are beginning to dominate our lives. Success in a post-industrial state depends on what one knows, what knowledge one has access to - the specialist, the professional. The ones with inside information and skill will win the best jobs and the 'glittering prizes' of society. Recent U.S. statistics show that there is a five-fold difference between the average monthly income of those who make it to the professions and of those who don't make it through high school:

	$/MONTH
Professional (Doctors, Lawyers, Dentists)	$3 871
Holders of a Doctoral degree	$3 265
Holders of a Master's degree	$2 288
Holders of Bachelor's degree	$1 841
Holders of an Associate's degree	$1 346
Holders of a Vocational Certificate	$1 219
College drop-outs	$1 169
High school graduates (no college education)	$1 045
High school drop-outs	$ 693

How does all this affect the world of work? There will be fewer and fewer jobs in agriculture and manufacturing as technology and robotics take over. Indeed, the trends will be to concentrate industrial production in third world countries where wages are lower and plentiful labour is available (eg Korea, Taiwan, Indonesia). One U.S. survey predicts that by the year 2000, only 10% of the U.S. workforce will be employed in manufacturing.

Many jobs will simply disappear because of automation or because those skills are no longer required. For example, in the Australian plastics industry, 70% of businesses have undergone substantial technological change in the past two years. Workers will need to be re-trained for new tasks and must be prepared to undergo further training several times during their working life.

With the growth in service, information, management and professional jobs at the expense of hands-on skilled occupations, a better educated workforce will be essential. 12 years of schooling plus one or more years post-school training plus life-long dips into personal and professional educational programs will become the norm. (Technical and Further Education Colleges in Australia already have 1.3 million students.) An individual's readiness to either continue or return to education will be an important determinant for a successful career path.

The working wheel will shrink even further from its present average of about 30 hours. Job-sharing, part-time employment, frequent job changes and early retirement will be features of working life. Will individuals be able to cope productively with increased leisure and to have an active post-work lifestyle which gives them personal satisfaction and happiness?

The average age of citizens is rising steadily, fewer children are being born and people are living longer. The taxes that people pay in future may be used more to support the aged of our society than to build new schools. Again, this highlights the need for adult education programs aimed at enriching people's inner lives and in turn creates service industries - education, leisure, recreation, tourism, hospitality - to meet these needs.

And what of the world outside Australia? We will be in constant touch through our exploding information systems with every corner of the globe. Remember that the Vietnam war was the first conflict actually televised - a kind of real-life Rambo which brought realism and horror to our living rooms (and probably brutalised us as a result). Being monolingual is like burying our head in the cultural sand and pretending the rest of the world's languages and cultures don't exist. Australians must learn their neighbour's languages for economic, cultural and attitudinal reasons. We are a multicultural society in a multicultural world and it's time we grew up as a nation. School leavers in the 80's are the generation which can change Australia's prejudices about racial and linguistic supremacy.

In the midst of coping with technology and the information explosion and in our competitive pursuit for more material goods, there is a real danger that we may forget to be a caring society. Because there are and will be casualties of the post-industrial society - one pessimistic writer has gone even so far as to say "Some of the young people leaving school now might never have a job in the sense in which we understand the notion of paid work." Hopefully this will never apply to a Sadadeen graduate. But as citizens of the future they will still have to make political and social decisions about their less fortunate peers.

So much for gloom and doom. I want to make students think about who they are and what they are as a result of surviving 16 years of family and school influences. By twitching back the curtain concealing the future, I have tried to highlight some of the trends, changes and directions which will shape future lifestyles and job pathways. Students can choose to ignore the wealth of information available and happily walk backwards into the future with their eyes fixed firmly on the past, or they can make informed decisions based on wide reading, discussion and observation of societal and economic trends.